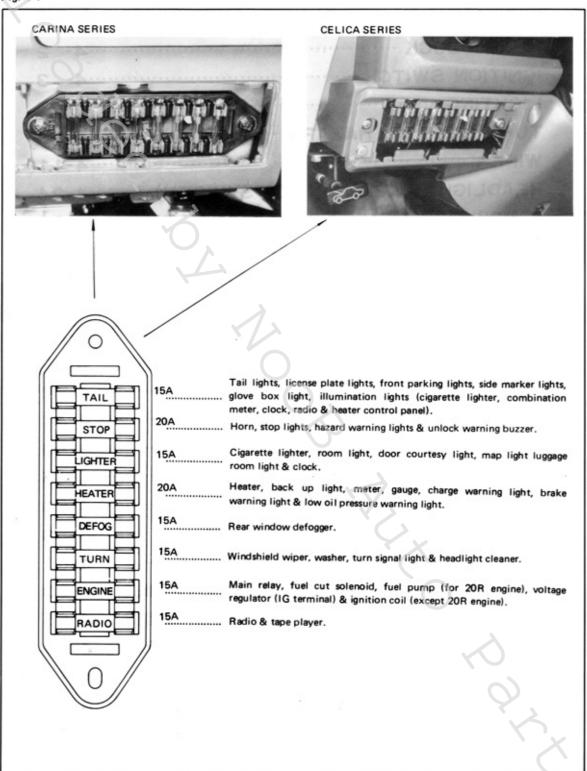
BODY ELECTRICAL

| | - | ge |
|---|---------------|-----|
| FUSE BLOCK | ٠4- | 2 |
| IGNITION SWITCH | | |
| LIGHTING | ٠4- | 5 |
| TURN SIGNAL & HAZARD | | |
| WIPER | ٠4- | 1 1 |
| HEADLIGHT CLEANER(FOR SWEDEN) | 4- | 24 |
| COMBINATION METER & GAUGES(CARINA SERIES). | 4- | 26 |
| COMBINATION METER & GAUGES(CELICA SERIES) | · 4 -: | 30 |
| FUEL GAUGE & WATER TEMPERATURE GAUGE | 4- | 35 |
| ENGINE TACHOMETER | | |
| SPEEDOMETER | 4- | 38 |
| OIL PRESSURE WARNING LIGHT & GAUGE | 4- | 39 |
| AMMETER | 4- | 40 |
| BRAKE WARNING | | |
| REAR WINDOW DEFOGGER | | |
| HEATER(CARINA SERIES) | 4- | 45 |
| HEATER(CELICA SERIES) | | |
| RADIO, TAPE PLAYER & SPEAKER | 4- | 59 |
| CLOCK | 4- | 61 |
| SWITCHES & RELAYS LOCATION (CARINA SERIES) \cdots | · 4 - | 63 |
| SWITCHES & RELAYS LOCATION(CELICA SERIES) \cdots | · 4 - | 65 |
| LIGHT COMPONENTS(CARINA SERIES) | | |
| LIGHT COMPONENTS(CELICA SERIES) | · 4 - | 72 |
| WIRING HARNESS ROUTING(CARINA SERIES) \cdots | 4- | 74 |
| WIRING HARNESS ROUTING(CELICA SERIES) | ٠4- | 76 |

FUSE BLOCK

Fig. 4-1



IGNITION SWITCH

REMOVAL

Remove the parts in the order numbered below.

Fig. 4-2

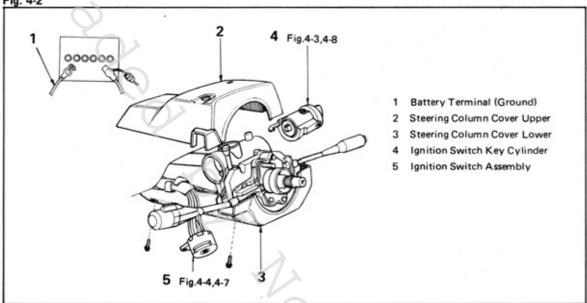
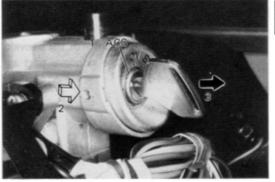


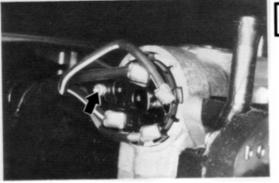
Fig. 4-3





- . Remove ignition switch key cylinder. (Item 4)
 - (1) Turn the ignition key to "ACC".
 - (2) Hold down the pin with a wire and pull out the ignition switch key cylinder.

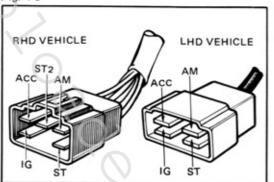
Fig. 4-4



++

Remove ignition switch assembly. (Item 5)
Remove the attaching screw and take off
the ignition switch assembly.

Fig. 4-5



INSPECTION

Jæ.

Terminal connections

AM To battery fusible link (power source)

IG To ignition coil fuse (TURN) 15A fuse (ENGINE) 15A

ACC To fuse (RADIO) 15A

ST To starter "ST" terminal &

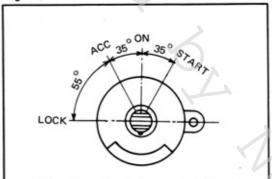
fuel pump relay
ST2 To ignition coil "+" terminal

ST2

(RHD)

ST

Fig. 4-6



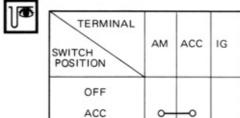
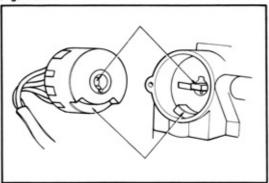


Fig. 4-7



INSTALLATION

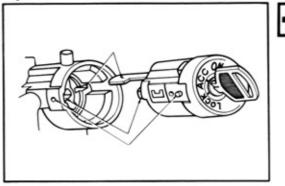
ON START

Perform the removal in reverse order.

- Note -

 Install the ignition switch with the convex part aligned against the concave part as shown in Fig. 4-7.

Fig. 4-8



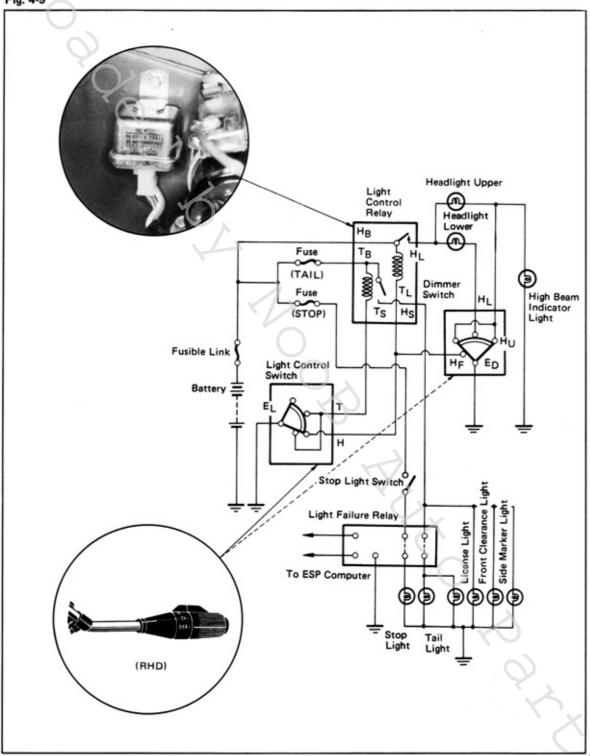
In installing the ignition switch key cylinder, turn the key to "ACC" and align the convex part with the concave part as shown in Fig. 4-8.



LIGHTING

CIRCUIT DIAGRAM

Fig. 4-9



Light Control Switch

DISASSEMBLY

Disassemble the following parts in numerical order.

Fig. 4-10

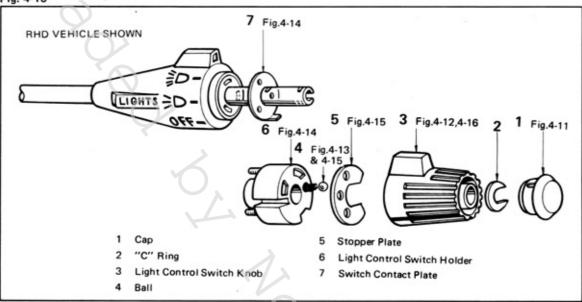


Fig. 4-11





Cap removal (Item 1)
 Remove the cap by prying it off screwdriver.

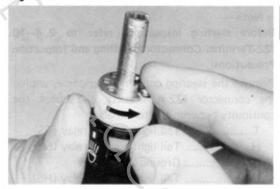
Fig. 4-12





Light control switch knob removal. (Item 3)
Remove the "C" ring. Turn the knob one
step and pull the knob from the shaft.

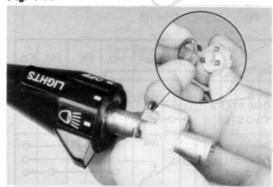
Fig. 4-13





Steel ball removal. (Item 4)
 Turn the switch holder and take out the ball and spring. Use care as the ball will jump out.

Fig. 4-14

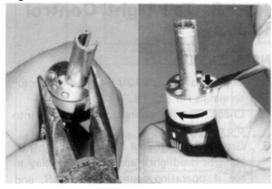


ASSEMBLY

Perform the disassembly in reverse order.

- 1. Assemble switch holder. (Item 6)
 - (1) Set three springs on the switch holder.
 - Fit the lip of right contact plate into the larger slot on the switch holder.
 - (3) Install the switch holder to the switch body.

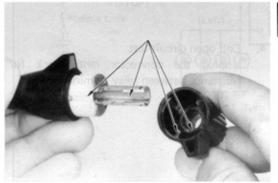
Fig. 4-15





- Assemble stopper plate. (Item 5)
 Install the stopper plate from the direction as shown.
- Assemble steel ball. (Item 4)
 Assemble the spring and steel ball into the switch holder, and turn the switch holder while pushing the ball.

Fig. 4-16

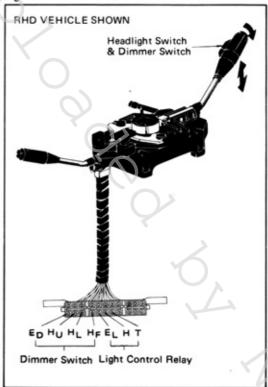




 Assemble light control switch knob. (Item 3)

Assemble the switch knob by fitting the lips at switch knob inner side into the slots of shaft and switch holder.

Fig. 4-17



INSPECTION

- Note -

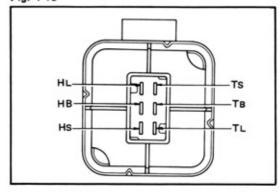
Before starting inspection, refer to P. 4–10 (22-Terminal Connector Handling and Inspection Precautions).

Remove the steering column lower cover, unplug the connector (22 terminals), and check the continuity between the terminals.

| Τ | Tail light control relay (TS) |
|----|-------------------------------|
| H | Tail light control relay (HS) |
| EL | Ground |
| HF | Tail light control relay (HS) |
| HL | Headlight (lower) |
| Ηυ | Headlight (upper) |
| ED | Ground |

| Terminal Switch | Т | н | EL | Hu | HL | HF | ED |
|--|----|---|----|----|----|-----|-----|
| OFF ONE STEP TWO STEP | 00 | 0 | 99 | | | | |
| Headlight U. Headlight L. Headlight F. | | | | 9 | 0- | -0- | 999 |

Fig. 4-18



| Terminals | Resistance (Reference) |
|-----------|------------------------|
| TB - TS | 60 Ω approx. |
| HB — HS | 60 Ω approx. |

Head & Tail Light Control Relay



INSPECTION

- Check that there is 12V between connector terminals HB and TB.
- Check that the connector is plugged into the relay.
- Ground the terminal Ts (for tail light) or Hs (for headlight), and check the relay to see if operating sound is given off, and check the light to see if turned on.
- Coil open circuit test Unplug the connector, and check for resistance between relay terminals.

TURN SIGNAL & HAZARD

Fig. 4-19

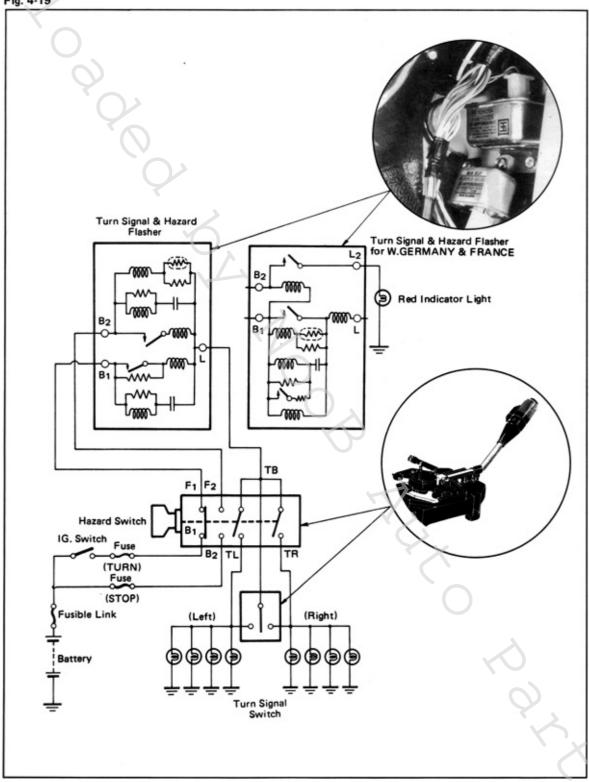


Fig. 4-20



Turn Signal & Hazard Switch

J.

INSPECTION

- Note -

Precautions below before starting inspection.

Remove the steering column lower cover, pull out the connector, and check continuities between terminals.

| TB | Turn signal flasher (L) |
|----------------|------------------------------|
| TR | Turn signal light (R) |
| TL | Turn signal light (L) |
| F1 | Turn signal flasher (B1) |
| F2 | Turn signal flasher (B2) |
| В1 | Fuse (TURN) |
| B ₂ | Fuse (HORN) |

| Ten Switch | minal | TL | Тв | TR | F1 | F2 | B1 | B2 |
|----------------|-------|----|----------|----|----|----|----|----|
| | R | | 0 | 9 | 9 | - | - | |
| Turn Signal | N | | | | 0 | | -0 | |
| | L | 0 | ~ | | 0 | | - | |
| Hazard | | 0 | <u> </u> | - | | 0 | | - |



- 22-Terminal Connector Handling and Inspection Precautions -



Fig. 1 Unplugging Connector



Fig. 2 Inserting tester probe

- As shown in Fig. 1 unplug the connector by pushing in the lock levers and pulling apart.
- In checking the continuity or voltage with a circuit tester, always insert the tester probe from the wire harness side as shown in Fig. 2. Never insert from the receptacle side as the connector insertion fit will be enlarged and may cause defective contact.



Fig. 3 Connecting Part



Fig. 4 Connecting Part

WIPER

Wiper Motor And Link (Carina Series)

REMOVAL

Remove the following parts in numerical order.

Fig. 4-21

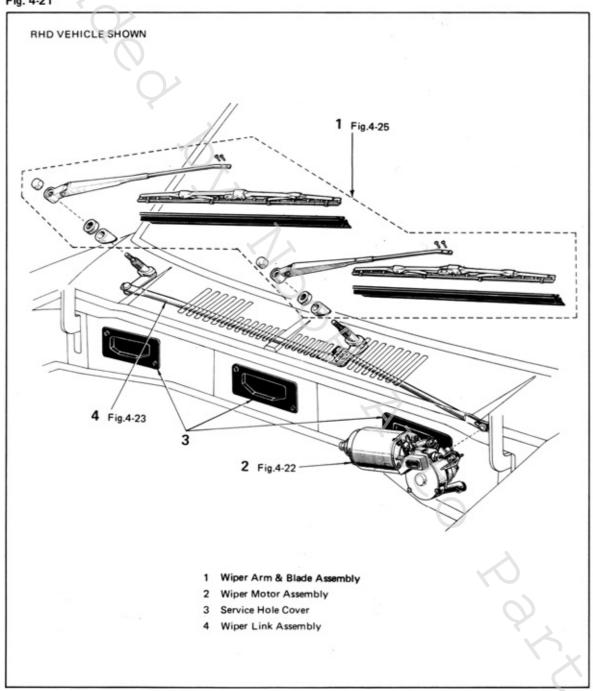


Fig. 4-22



WIPER MOTOR & LINK REMOVAL



Wiper motor removal. (Item 2) Separate the coupling between the wiper link and crank arm by prying apart with screwdriver.

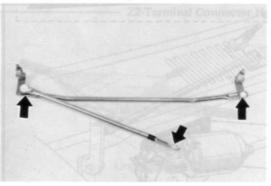
Fig. 4-23





- Wiper link removal. (Item 4) 2.
 - Remove the cowl service hole cover and remove the left and right wiper pivot parts from the body.
 - (2)Remove the links through the hole where the wiper motor was mounted.

Fig. 4-24



INSTALLATION

Perform the removal in reverse order.

Grease the wiper link pivots and ball joints before installing the wiper links.

Fig. 4-25

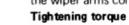


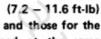


Before installing the wiper arms, turn on the wiper motor and then allow it to stop automatically. At this time, install the wiper arms correctly positioned.

100 - 160 kg-cm

(The nuts for the arms and those for the pivot shaft are tightened at the same torque)





Wiper Motor And Link (Celica Series)

REMOVAL

Remove the following parts in numerical order.

Fig. 4-26

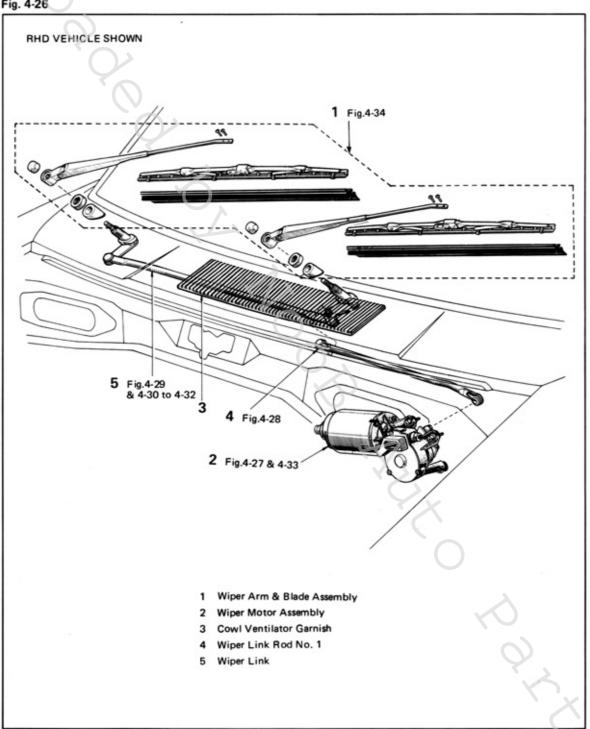


Fig. 4-27



Wiper motor removal. (Item 2)
 Separate the coupling between the wiper link and crank arm by prying apart with screwdriver.

Fig. 4-28



- 2. Wiper link removal. (Item 5)
 - Pry apart the link No. 1 at the wiper motor side with screwdriver.

Fig. 4-29



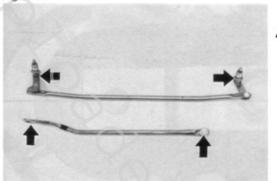
- Loosen the pivot nut and take off the outer bushing and packing.

Fig. 4-30



(3) Push the pivot shaft into cowl inner side and pull it out through the cowl center service hole.

Fig. 4-31

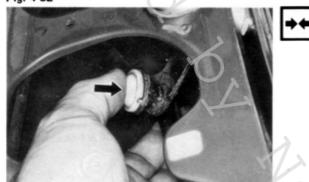


INSTALLATION

Perform the removal in reverse order.

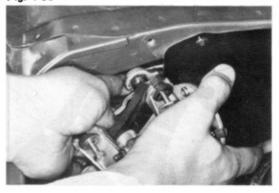
- . Assemble wiper link. (Item 5)
 - Grease the wiper link pivots and ball joints before installing.

Fig. 4-32



- 2) Assemble wiper link ball joint.
 - Connect the ball at pivot side to the ball joint at link side.
 - Position the taped joint at the wiper motor side.

Fig. 4-33





 Install wiper motor (Item 2)
 Securely couple the wiper link to the crank arm.

Fig. 4-34







Install wiper arms (Item 1)
 Before installing the wiper arms, turn the
 motor and set it at automatic stop position.
 Then install the wiper arms in the parked
 position.

Tightening torque

100 - 160 kg-cm

(7.2 - 11.6 ft-lb)

(The nuts for the arms and those for the pivot shafts are tightened at the same torque)

Wiper Motor

DISASSEMBLY

Disassemble the following part in numerical order.

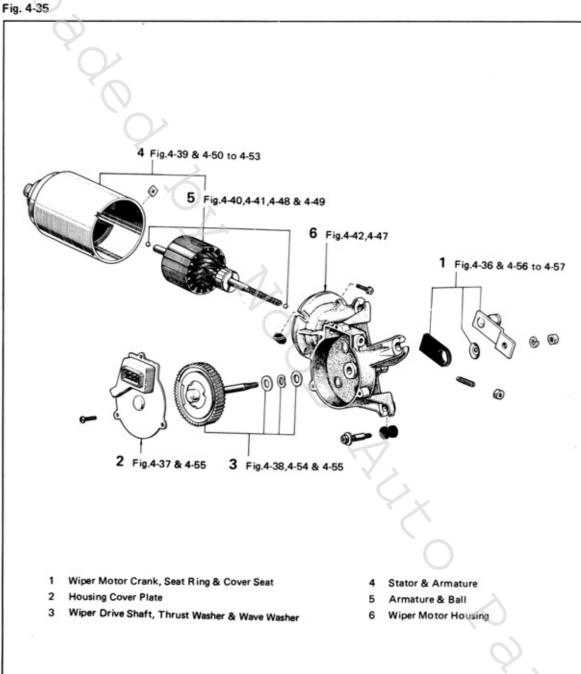
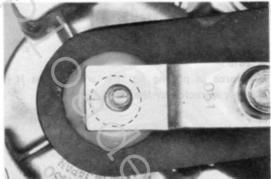


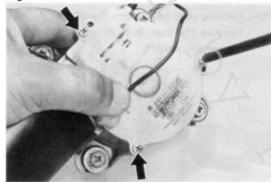
Fig. 4-36





Remove wiper motor crank arm. (Item 1)
Place aligning marks on the crank arm
and shaft.

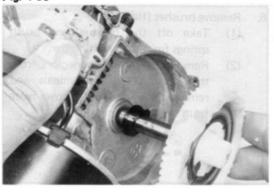
Fig. 4-37





- 2. Remove drive shaft gear (Item 3)
 - Remove the crank housing cover plate from the gear housing.

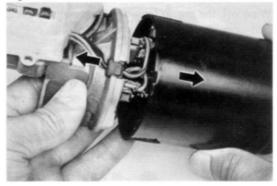
Fig. 4-38





(2) Take out the drive shaft gear from gear housing.

Fig. 4-39





 Remove stator & armature. (Item 4)
 Remove the two gear housing mounting screws and remove the gear housing from the stator.

- Note -

Since the armature shaft remains with the stator, use care in removal as there will be a danger of the brushes slipping off the commutator and becoming damaged by the worm gear.

Fig. 4-40



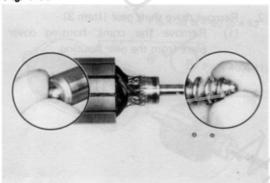


 Remove armature. (Item 5)
 Remove the two stator nuts (1) and pull the armature from the stator.

- Note -

Use force in pulling out the armature as it is strongly attracted by the stator magnet.

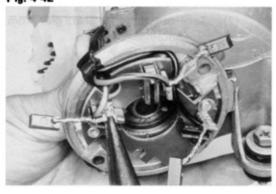
Fig. 4-41





 Remove steel balls (Item 5)
 Remove the steel balls from both ends of the armature shaft.

Fig. 4-42

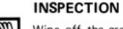




- 6. Remove brushes (Item 6)
 - Take off the brushes and brush springs from the brush holder.
 - (2) Remove the brush connectors from the brush holder terminals and remove the crank housing cover plate from the gear housing.

Fig. 4-43



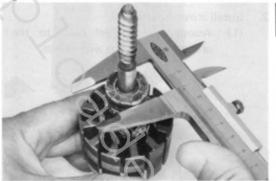


Wipe off the grease from the disassembled parts and inspect them on the following points, replacing or repairing as necessary.

Brush length Service limit 6.0 mm (0.24 in.)



Fig. 4-44





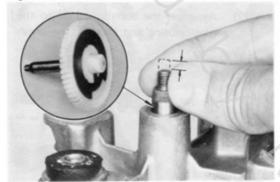
Commutator for contamination and burning

Commutator diameter

Service limit 22.0 mm (0.87 in.)

- Armature shaft to bushing clearance
 Clearance is satisfactory if there is no
 excessive looseness at the gear part (worm
 part) when the armature is assembled. If
 too loose, replace the motor assembly.
- Armature winding for open-or short-circuit.

Fig. 4-45



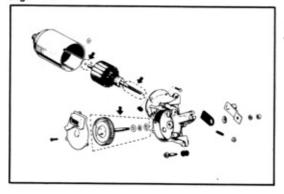


Drive shaft thrust clearance. If excessive, replace the washer.

Thrust clearance 0.2 mm (0.008 in.) maximum

Gears for wear and damage.

Fig. 4-46



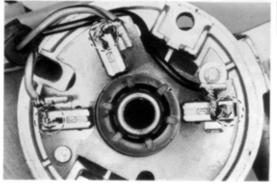


Perform the removal in reverse order.

- Note -

Grease the gear teeth, point sliding surfaces, steel balls, and stator bushings before assembling.

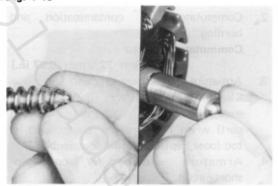
Fig. 4-47





Install brushes (Item 6)
 Assemble the brush springs and brushes into the brush holder, and have the brush lead wires hooked on to brush holder lips.

Fig. 4-48





- Install armature (Item 5)
 - Assemble the steel balls to the armature shaft ends with grease.

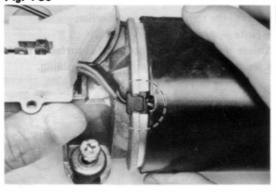
Fig. 4-49



(2) Assemble the armature shaft to the gear housing and unhook the brush

leads.

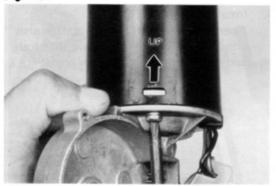
Fig. 4-50





- 3. Install stator (Item 4)
 - Remove the tape adhered to the stator.
 - (2) Assemble by fitting the notch at stator side to the tab at key housing side.

Fig. 4-51





(3) With the stator end positioned at top, insert the nuts into stator, and install the screws.

Fig. 4-52





(4) After installing the screws, tape the parts where the nuts were inserted.

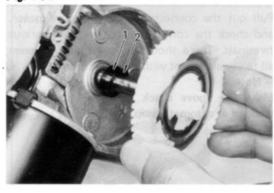
Fig. 4-53



(5) Adjust the armature shaft thrust clearance.

Gradually screw in the adjust screw until it contacts lightly on the nut and then tighten the nut.

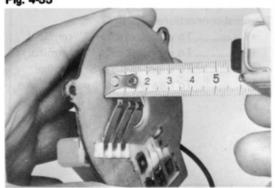
Fig. 4-54





- 4. Install wiper drive shaft. (Item 3)
 - Assemble the thrush washer (2) and wave washer (1) to the drive shaft and install the drive shaft to the crank housing.

Fig. 4-55



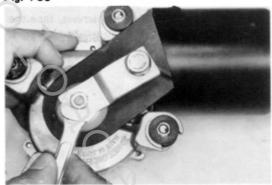




(2) Install crank housing cover plate. Check the height of the auto, stop switch lever at cover plate, and install the cover plate.

Switch lever height 10 mm (0.4 in.)

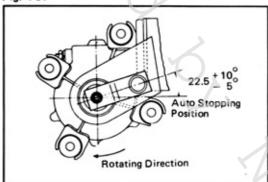
Fig. 4-56





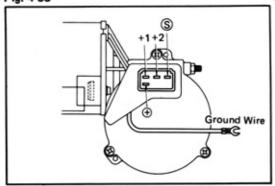
- 5. Install crank arm (Item 1)
 - (1) Assemble the cover seat and seat ring, align the drive shaft and crank arm aligning marks, and secure the crank arm.

Fig. 4-57



(2) Connecting vehicle wire harness Make wiper motor rotation test. Set wiper motor to auto stop position and check the crank arm to see if positioned as shown in Fig. 4-57

Fig. 4-58





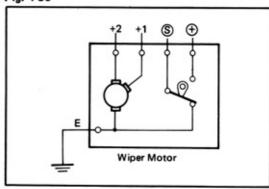
ON-VEHICLE INSPECTION

Pull out the connector from the wiper motor, and check the continuities between the various terminals. There should be continuity between all terminals except with the (+) terminal.

- Note -

Make the above check with the wiper motor stopped at automatic stop position.

Fig. 4-59





Terminal connections

- +1To wiper switch "+1" terminal +2 To wiper switch "+2" terminal
- S To wiper switch "S" terminal
- ①...... To fuse (WIPER) : power source

INSPECTION

Fig. 4-60

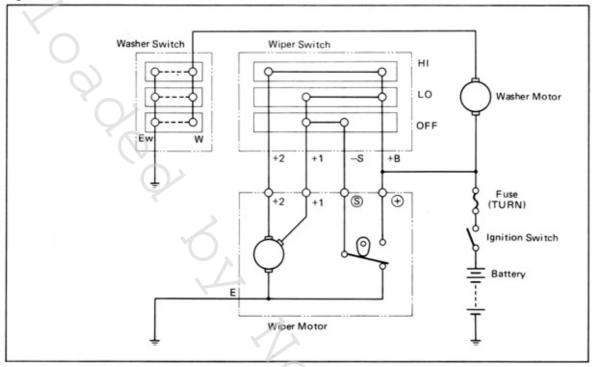
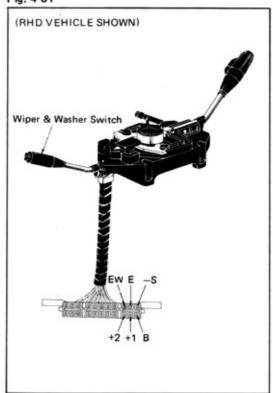


Fig. 4-61





Wiper & Washer Switch

- Note -

Before starting inspection, refer to P. 4-10 (22-Terminal Connector Handling and Inspection Precautions).

Remove the steering column lower cover, pull out the connector, and check continuities between terminals.

| В | Fuse (WIPER) |
|----|------------------|
| +1 | Wiper motor (+1) |
| +2 | Wiper motor (+2) |
| -S | Wiper motor (S) |
| W | Washer motor |
| Ew | Ground |

| Termi Switch | nal +B | +1 | +2 | -S | w | Ew |
|-----------------|--------|----------|----|----|---|----|
| OFF | | <u>~</u> | | - | 0 | .0 |
| LO | 0 | ~ | | | 0 | -0 |
| HI | 0 | | - | | 0 | -0 |

HEADLIGHT CLEANER(FOR SWEDEN)

Fig. 4-62

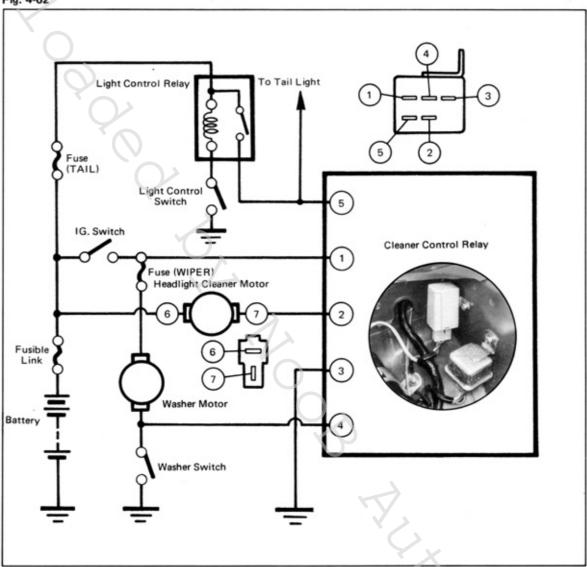
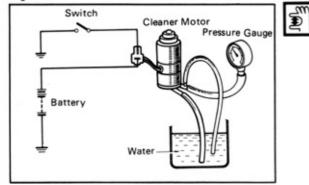


Fig. 4-63



INSPECTION

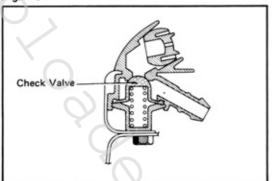
Cleaner Motor

Mount a pressure gauge to the outlet union, and check the motor discharge pressure.

Discharge pressure

2.4 to 3.0 kg/cm² (34.1 to 42.7 psi)

Fig. 4-64





Cleaner Nozzle

 Check the opening pressure of nozzle check valve.

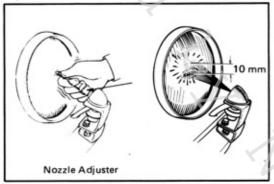
Opening pressure 1.7 to 2.1 kg/cm² (24.2 to 29.9 psi)

Difference between left and right sides 0.2 kg/cm² (2.8 psi) maximum

- Note -

If one nozzle starts spraying extremely faster than the other, replace the nozzle assembly.

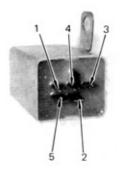
Fig. 4-65





Nozzle spray angle. Adjust by using the nozzle adjuster so that the fluid will be sprayed 5 to 10 mm above the headlight center mark.

Fig. 4-66



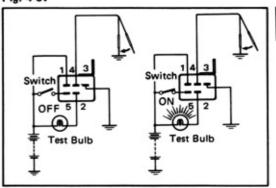


Cleaner Relay

Terminal connections

- 1 To fuse (WIPER) power source
- 2 To cleaner motor
- 3 Ground
- 4To window washer switch
- 5 To light control relay

Fig. 4-67





- Connect the battery and test bulb (12V/3.4W) as illustrated.
- Check the light control relay for correct operation.

With the terminal (5) disconnected from the battery and the terminal (4) grounded, the test bulb should not come on.

With the terminal (5) connected to the battery and the terminal (4) grounded, the test bulb should come on during 0.3 to 0.5 second.

COMBINATION METER & GAUGES (CARINA SERIES)

REMOVAL

Remove the following parts in numerical order.

Fig. 4-68

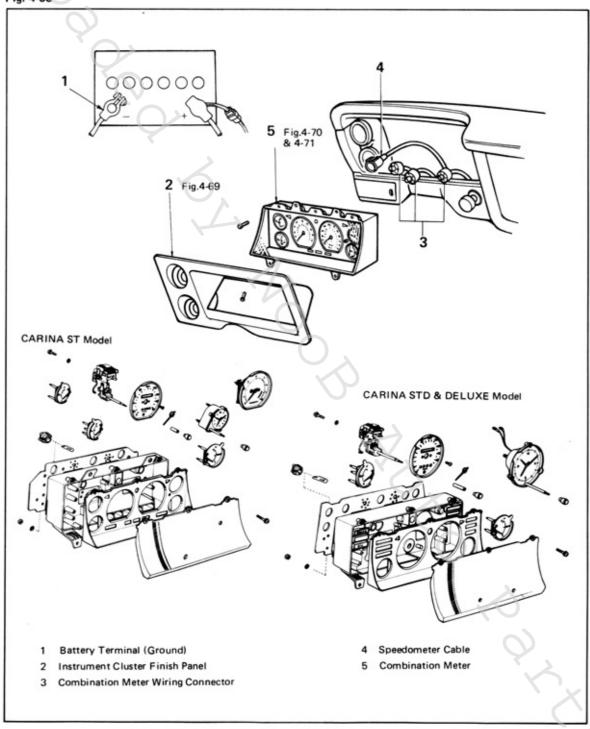


Fig. 4-69





Instrument cluster finish panel removal. (Item 2) Remove the four mounting screws and take off the instrument cluster finish panel by pulling out from the lower part.

Fig. 4-70

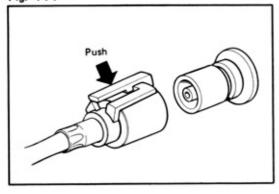




Combination meter removal (Item 5)

 Remove the four mounting screws, and disconnect the wire connector from the back side of the meter.

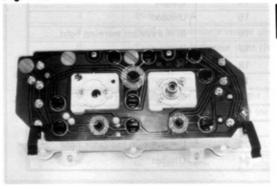
Fig. 4-71





 To disconnect speedometer cable, push the lock release lever and pull the cable from the socket.

Fig. 4-72

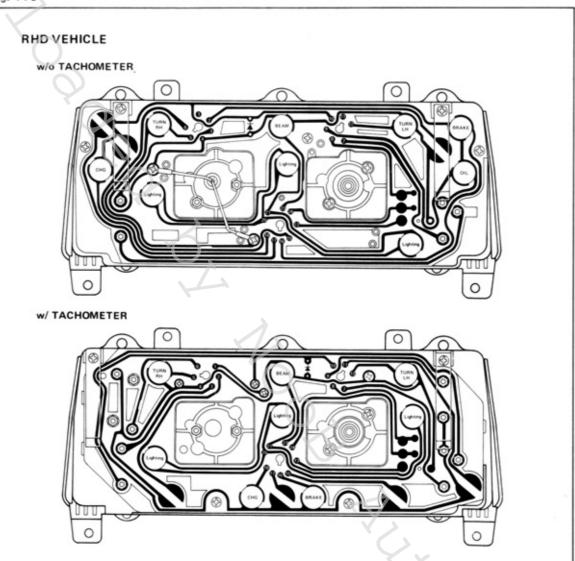




(3) Disassemble the combination meter as necessary.

INSPECTION

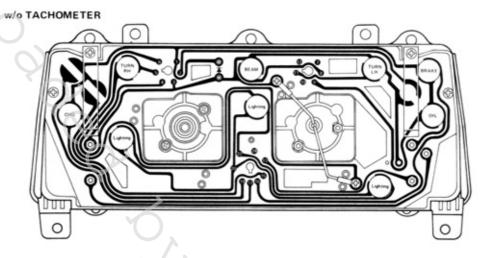
Fig. 4-73



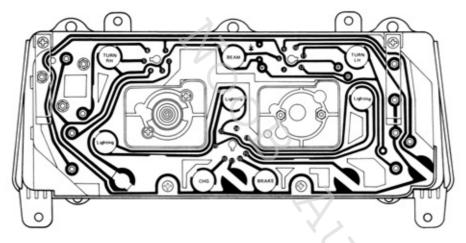
| Terminal No. | Connects to | Terminal No. | Connects to | |
|--------------|--|--------------|----------------------------|--|
| 1 | w/o Tachometer Dummy w/ Tachometer Tachometer (S) | 13 | Unused | |
| 2 | Unused | 14 | Empty | |
| 3 | Water temperature sender gauge | 15 | Unused | |
| 4 | Body groud | 16 | Brake system warning light | |
| 5 | Turn signal indicator light (RH) | 17 | Unused | |
| 6 | Auto clock (+) | 18 | Discharge warning light | |
| 7 | Fuel sender gauge | 19 | Empty | |
| 8 | Unused | 20 | Meter lighting (+) | |
| 9 | Oil pressure sender gauge (or switch) | 21 | Meter lighting (-) | |
| 10 | Combination meter (+) | 22 | Empty | |
| 11 | Unused | 23 | Upper beam indicator light | |
| 12 | Turn signal indicator light (LH) | 24 | Unused | |

Fig. 4-74

LHD VEHICLE



w/ TACHOMETER



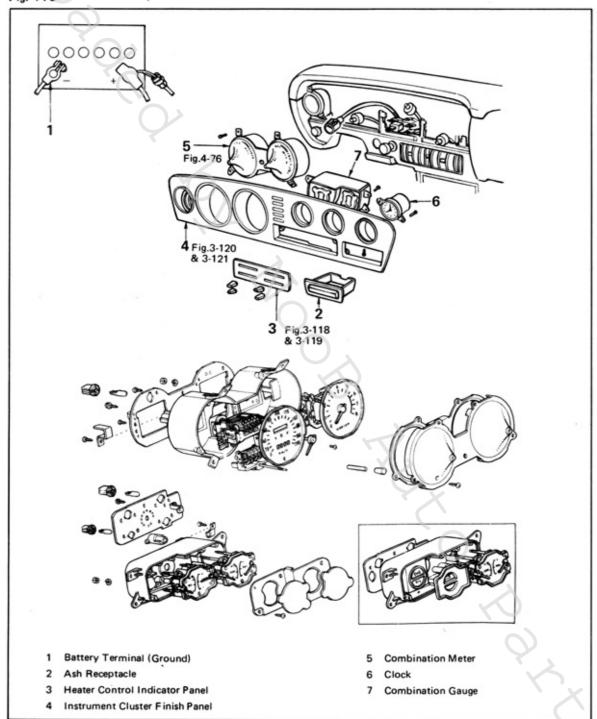
| Terminal No. | Connects to | Terminal No. | Connects to |
|--------------|--|--------------|----------------------------|
| 1 | Combination meter (+) | 13 | Fuel sender gauge |
| 2 | Unused | 14 | Empty |
| 3 | Body ground | 15 | Unused |
| 4 | Water temperature sender gauge | 16 | Brake system warning light |
| 5 | Turn signal indicator light (RH) | 17 | Unused |
| 6 | Auto clock (+) | 18 | Discharge warning light |
| 7 | Dummy | 19 | Empty |
| 8 | Upper beam indicator light | 20 | Meter lighting (+) |
| 9 | Oil pressure sender gauge (or switch) | 21 | Empty |
| 10 | Unused | 22 | Meter lighting (-) |
| 11 | Turn signal indicator light (LH) | 23 | Empty |
| 12 | w/o Tachometer Dummy w/ Tachometer Tachometer (S) | 24 | Dummy |

COMBINATION METER & GAUGES (CELICA SERIES)

REMOVAL

Remove the following parts in numerical order.

Fig. 4-75



SEE SAFETY PAD REMOVAL PAGE 3-42



Instrument cluster finish panel removal, Perform the operations 5 and 6 under Instrument Panel Safety Pad Removal section on Page 3-44.

Fig. 4-76

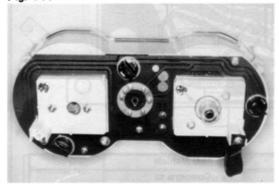




Combination meter, (Item 5)

 Loosen the mounting screws, and disconnect the socket and speedometer cable from the back side of meter.

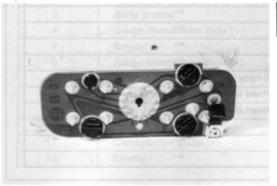
Fig. 4-77





(2) Disassemble and inspect the combination meter as found necessary.

Fig. 4-78

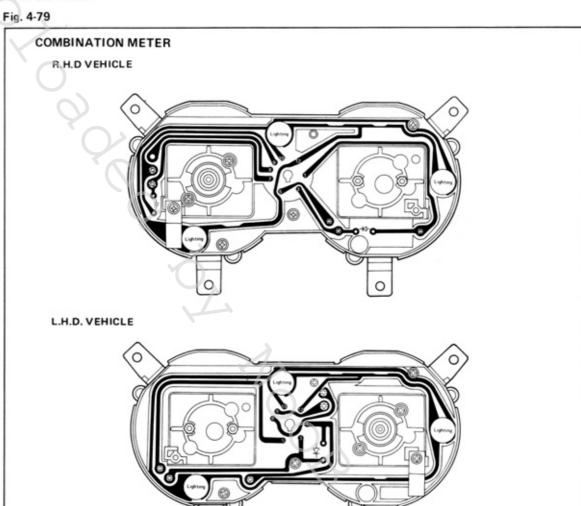




Combination gauge (Item 7)

Remove combination gauge from cluster finish panel, and disassemble and inspect as found necessary.

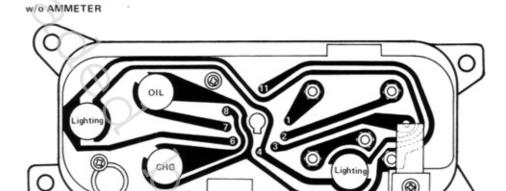
INSPECTION



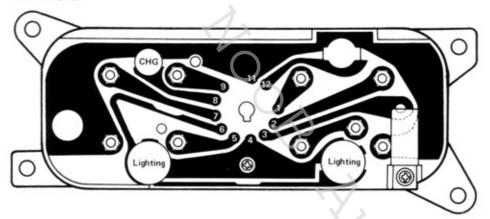
| Terminal No. | R.H.D. Vehicle | L.H.D Vehicle |
|--------------|------------------------------|--------------------------|
| Terminal No. | Connects to | Connects to |
| 1 | Tachometer ground | + |
| 2 | Empty | + |
| 3 | Tachometer (+) ↔Ignition (+) | + 0 |
| 4 | Empty | ← |
| 5 | Tachometer (s) ↔Ignition (-) | + |
| 6 | Empty | + |
| 7 | Unused | Empty |
| 8 | Empty | Reed switch (USA) |
| 9 | Unused | Reed switch ground (USA) |
| 10 | Meter illumination light (+) | + |
| 11 | Empty | + |
| 12 | Meter illumination light (-) | + |

Fig. 4-80

COMBINATION GAUGE R.H.D VEHICLE

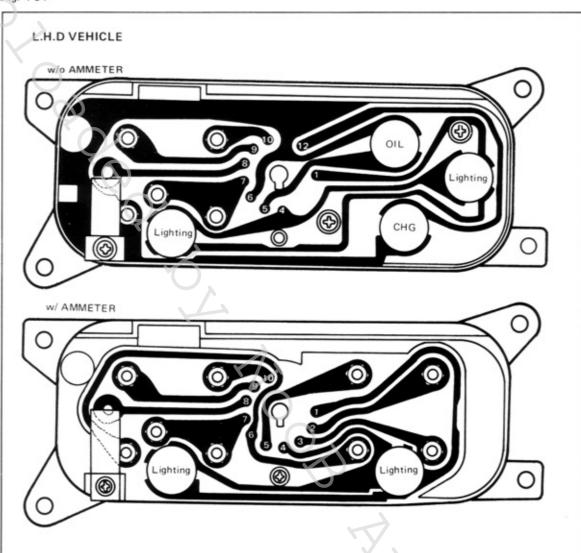






| Terminal No. | w/o Ammeter | w/ Ammeter |
|--------------|----------------------------------|-----------------------------|
| Terminal No. | Connects to | Connects to |
| 1 | Water temperature receiver gauge | + |
| 2 | Fuel receiver gauge | + |
| 3 | Body ground | + 0 |
| 4 | Gauge illumination light (-) | + |
| 5 | Empty | Ammeter (+) |
| 6 | Gauge illumination light (+) | + |
| 7 | Low oil pressure warning light | Oil pressure receiver gauge |
| 8 | Discharge warning light | Discharge warning light |
| 9 | Empty | Ammeter (–) |
| 10 | Empty | + |
| 11 | Combination gauge (+) | + |
| 12 | Empty | Unused |

Fig. 4-81



| Terminal No. | w/o Ammeter | w/ Ammeter |
|--------------|----------------------------------|-----------------------------|
| | Connects to | Connects to |
| 1 | Gauge illumination light (-) | + |
| 2 | Empty | Ammeter (–) |
| 3 | Empty | Ammeter (+) |
| 4 | Gauge illumination light (+) | + |
| 5 | Low oil pressure warning light | Oil pressure receiver gauge |
| 6 | Combination gauge (+) | + |
| 7 | 7V terminal | + |
| 8 | Body ground | + |
| 9 | Fuel receiver gauge | + |
| 10 | Water temperature receiver gauge | + |
| 11 | Empty | + |
| 12 | Discharge warning light | Empty |

FUEL GAUGE & WATER TEMPERATURE GAUGE

Fig. 4-82

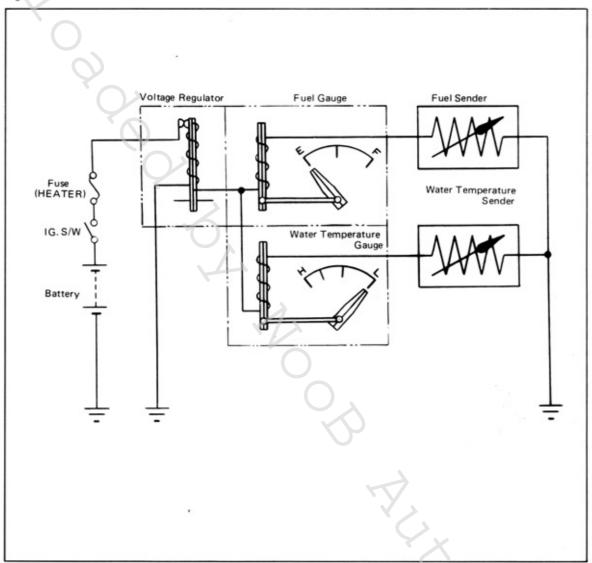
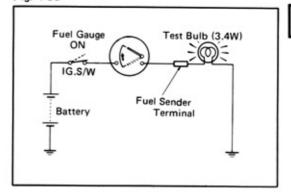


Fig. 4-83

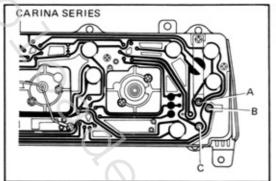


Fuel Gauge

INSPECTION

 Pull out the connector from the fuel gauge and ground the terminal through a 3.4W bulb. When the ignition switch is turn on, the bulb should light (but start to flash after few seconds) and the gauge pointer should deflect, if the gauge is in proper condition.

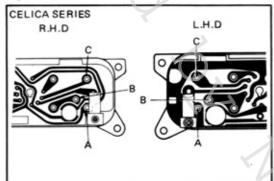
Fig. 4-84





- If the gauge fails the above test, remove the combination meter assembly and check on the following points.
 - With the multi-terminal connector plugged in to the combination meter, turn on the ignition switch and verify that battery voltage is present at terminal (A).
 - (2) There should then be a constantly varying voltage at terminal (B) that is fluctuating between 2V and 7V.

Fig. 4-85



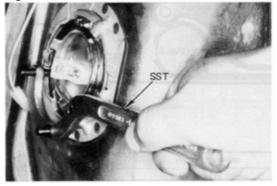


When the ignition switch is turned on, the 12V battery voltage will be indicated but after a few seconds, the voltage will drop down to between 2V and 7V.

(3) Measure the resistance between terminals (A) and (C).

Standard resistance 55Ω

Fig. 4-86



V.,

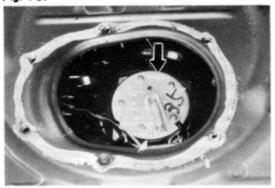
Fuel Sender

REMOVAL

A. Carina & Celica Hardtop Series

- Drain the gasoline from the fuel tank.
- Remove the fuel tank protecter, and pull out the sender gauge wire harness connector.
- Remove the set bracket with SST [09808-12010], and remove the sender.

Fig. 4-87





B. Celica Liftback Series

- Drain the gasoline from the fuel tank.
- Remove the spare tire, and remove the rear floor service hole cover.
- Remove the sender.

Fig. 4-88

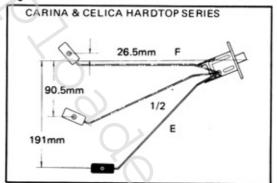


Fig. 4-89

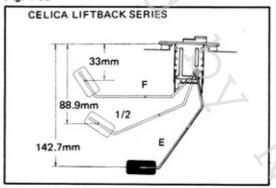


Fig. 4-90

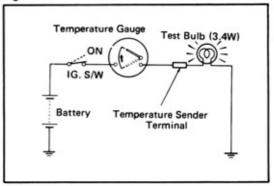
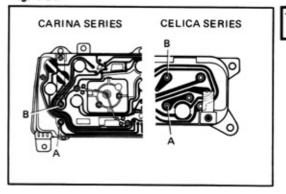


Fig. 4-91



INSPECTION



Remove the sender and measure the resistance between the terminal and ground with a circuit tester. The resistance should change smoothly when the float arm is moved, and be of the values shown in following table.

| Float Position | Resistance (Ω) |
|----------------|-----------------------|
| F | 3 ± 2.1 |
| 1/2 | 32.5 ± 4.8 |
| E | 110 ± 7.7 |

Water Temperature Gauge

INSPECTION

- Pull out the connector from the water temperature sender gauge and ground its terminal through a 3.4W bulb. When the ignition switch is turned ON, the bulb should light (but start to flash after few seconds) and the gauge pointer should deflect.
- If the above test shows condition to be abnormal, remove the combination meter assembly and check on the following points.
 - (1) With the multi-terminal connector plugged in to the combination meter and the ignition switch turned on, there should be a constantly varying voltage at terminal (A) that fluctuates between 2V and 7V. (A regulator is built into the fuel level gauge).

- Note -

When the ignition switch is turned on, the 12V battery voltage will be present but after a few seconds, the voltage will drop to between 2V and 7V.

Measure the resistance between terminals (A) and (B).

Standard resistance 55Ω





Fig. 4-92

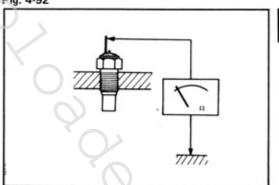


Fig. 4-93

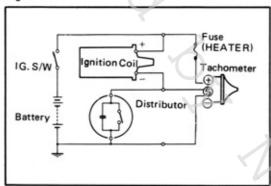


Fig. 4-94

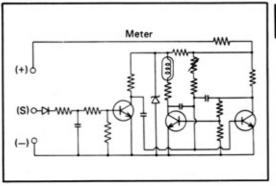
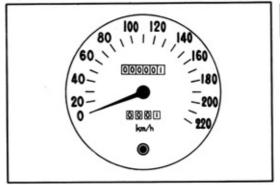


Fig. 4-95



Water Temperature Sender Gauge

INSPECTION

Measure the resistance between the terminal and ground with a circuit tester. The resistance should vary with the water temperature as shown in the table below.

| Temperature | Resistance |
|-------------|--------------|
| (50°C) | (154 Ω app.) |
| 80°C | 25 Ω app. |
| 100°C | 27.5 Ω app. |
| (120°C) | (16 Ω app.) |

Values in () are for reference

ENGINE TACHOMETER

INSPECTION

- Connect a tune-up test tachometer, and start the engine.
- Compare the tester and tachometer indications, and if the error is too great, replace the tachometer.

- Caution -

- Do not reverse battery connections as this tachometer is intended only for use in (-) ground vehicles. Reversed connection could damage the transistors and diodes contained inside.
- In removing or installing the tachometer, be careful not to drop it or subject it to heavy shocks.

SPEEDOMETER



ON-VEHICLE INSPECTION

Using a speedometer tester, inspect the meter indicating error, pointer vibration, abnormal noise, operation of odometer, and operation of speed warning device, supplied on some models.

- Note -

It must be noted that tire wear and tire over- and under-inflation will contribute toward indication error, and that pointer vibration is often caused by a loose cable.



OIL PRESSURE WARNING LIGHT & GAUGE

Fig. 4-96

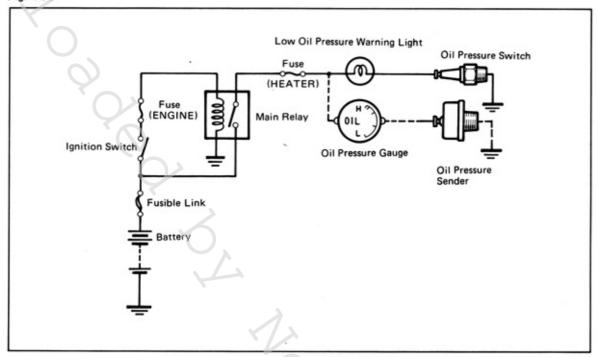
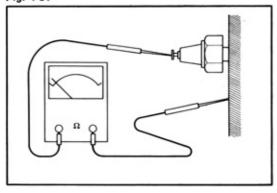
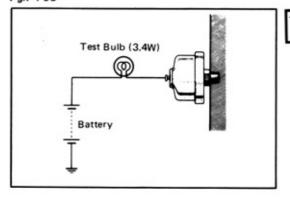


Fig. 4-97







Oil Pressure Switch

NSPECTION

Check the continuity between the terminal and ground with a circuit tester.

Engine stopped ON Normal

- Note -

Oil pressure must be up to 0.3 kg/cm² or higher after the engine starts.

Oil Pressure Sender

J.

INSPECTION

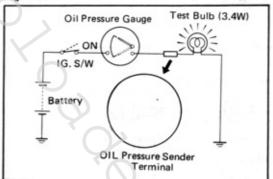
Pull out the connector from the sender, and apply battery voltage to the sender terminal through a 3.4W bulb. The bulb should not light when the engine is stopped, and should flash when the engine is running. The number of flashes should also vary with the engine speed.

- Note -

Even when the engine is stopped, the bulb may light for an instant when the battery voltage is applied, but this is normal.



Fig. 4-99



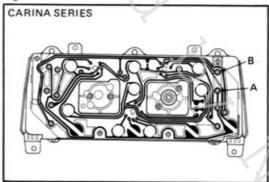
Oil Pressure Gauge



INSPECTION

 Pull out the connector from oil pressure gauge and ground the terminal through a 3.4W bulb. When the ignition switch is turned on, the bulb should light and gauge pointer should deflect.

Fig. 4-100

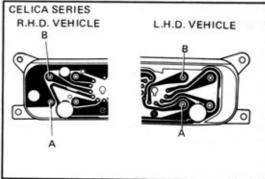


- If the above test shows abnormal condition, remove the combination gauge assembly and check on the following points.
 - With the connector plugged into the combination meter (gauge) and the ignition switch turned on, battery voltage should be present at terminal (A).
 - Measure the resistance between terminals (A) and (B).

Standard resistance

 42Ω

Fig. 4-101



AMMETER

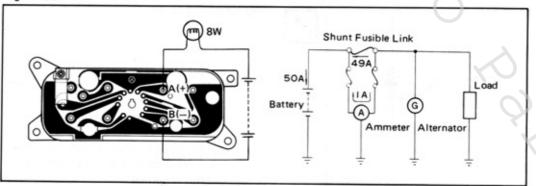
INSPECTION

Remove the combination gauge assembly, and apply 12V battery voltage between the terminals (A) and (B) through an 8W bulb. The ammeter should indicate around 30A at this time. time.

Caution –

In making this test, always connect a bulb not greater than 10W in series with the ammeter. If the battery voltage is applied directly impressed, the ammeter will be burned out.

Fig. 4-102





BRAKE WARNING

Fig. 4-103

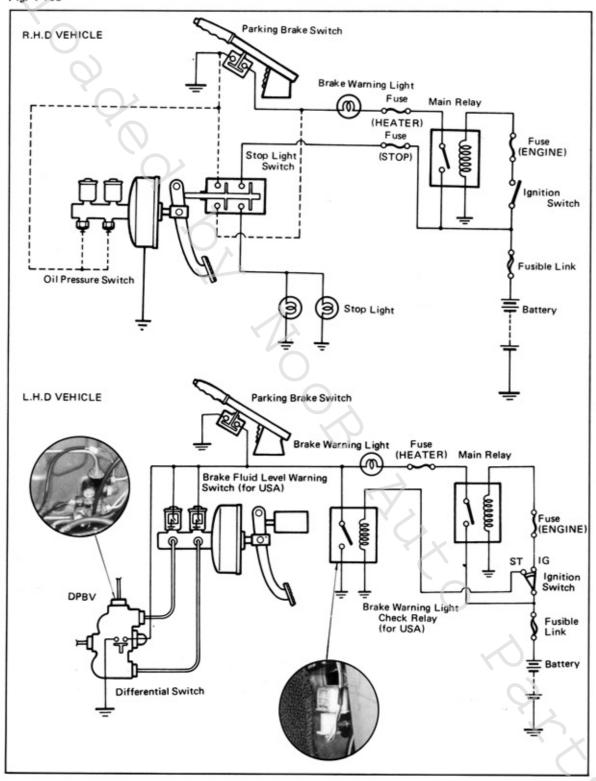
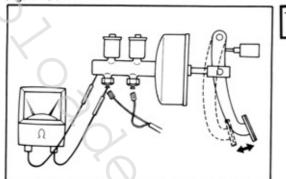


Fig. 4-104

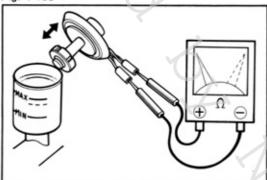


INSPECTION

Oil Pressure Switch

- When brake pedal is not depressed: Continuity between switch terminal and body.
- When brake pedal is depressed.
 No continuity between switch terminal and body.

Fig. 4-105

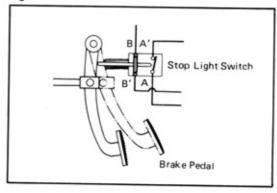




Brake Fluid Level Warning Switch

Remove the cap and check to see that it will switch "ON" and "OFF" when raised and lowered.

Fig. 4-106





Stop Light Switch

Terminal Connections

A To stop light

A' To fuse (stop) (power source)

B To brake warning light switch

Fig. 4-107

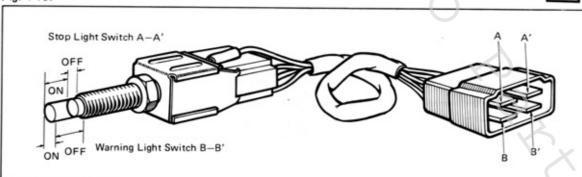
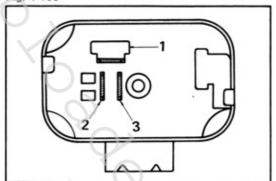




Fig. 4-108



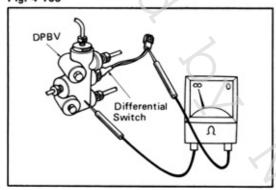


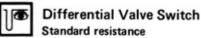
Brake Warning Light Check Relay

Terminal connections:

- 1To ignition switch "ST" terminal
- 2 To brake warning light
- 3 Ground

Fig. 4-109





REAR WINDOW DEFOGGER

Fig. 4-110

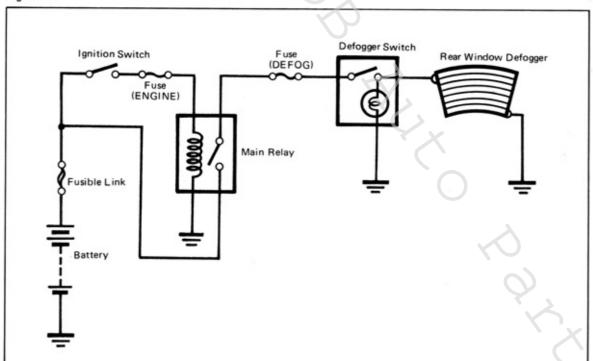


Fig. 4-111

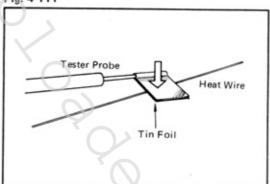


Fig. 4-112

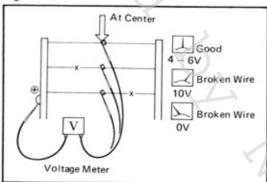


Fig. 4-113

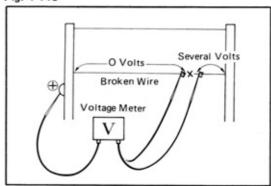
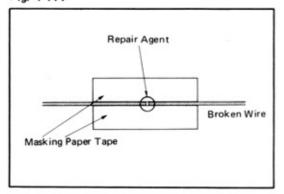


Fig. 4-114



Λ

PRECAUTIONS ON HANDLING HEAT WIRE TYPE DEFOGGER

- When cleaning the glass with a cloth, use a cloth that is soft and as dry as possible and wipe the glass in the heat wire direction, using care not to damage the heat wires.
- No not use detergents or glass cleaners containing abrasive ingredients.
- To prevent the tip of tester probe from damaging the heat wire when measuring the voltage, wind one end as strip of tin foil around the tip and check by pressing the other end of foil against the heat wire with your finger.

Printed Heat Wire

) Topological Control of the control

Jas

INSPECTION

- 1. Turn ON the defogger.
- Check the voltage at the center of each heat wire.

| Voltage | Criteria |
|-------------------|----------------------------|
| 4 - 6V | Good (No break in wire) |
| Approx. 10V or 0V | Broken wire |

CHECK FOR WIRE BREAKAGE POINT

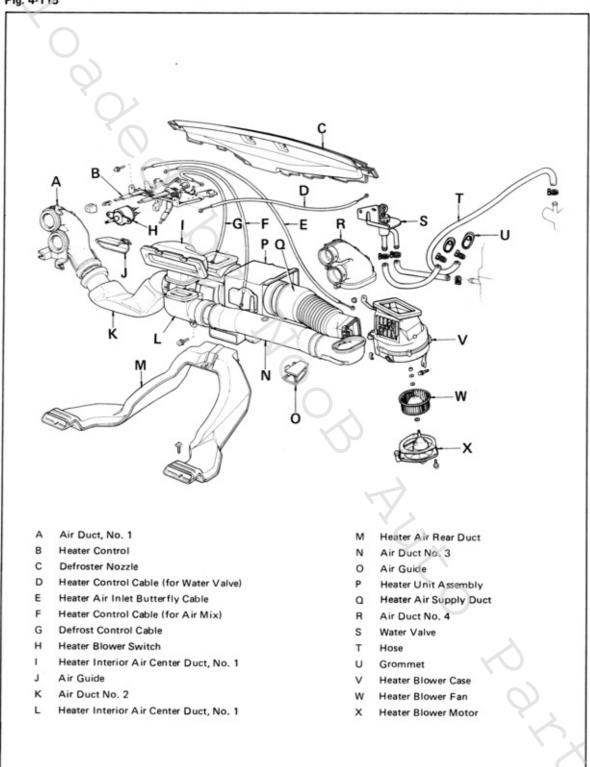
- Place the voltmeter (+) lead against the defogger (+) terminal.
- Place the voltmeter (-) lead with the foil strip against the heat wire at (+) terminal end, and shift it toward the (-) terminal end.
- The point at where the voltmeter deflects from zero volts to several volts is the place where the heat wire is broken,

REPAIR

- Preparatory materials
 - Fine pointed brush, size "O" or similar
 - (2) White gasoline
 - (3) Masking paper tape
 - (4) Repair agent: Dupont Paste No. 4817
- 2. Repair method
 - Clean where the wire is broken.
 - Stick masking tape beside the place that is to be repaired as illustrated.
 - (3) Thoroughly mix the repair agent, dip a small amount on a fine brush, and paint it on the part to be repaired.
 - (4) After one or two minutes, peel off the masking tape.
 - (5) Allow to stand at least 24 hours after repairing before turning the detogger on.

HEATER(CARINA SERIES)

Fig. 4-115



Heater Unit

REMOVAL

Remove the following parts in numerical order.

Fig. 4-116

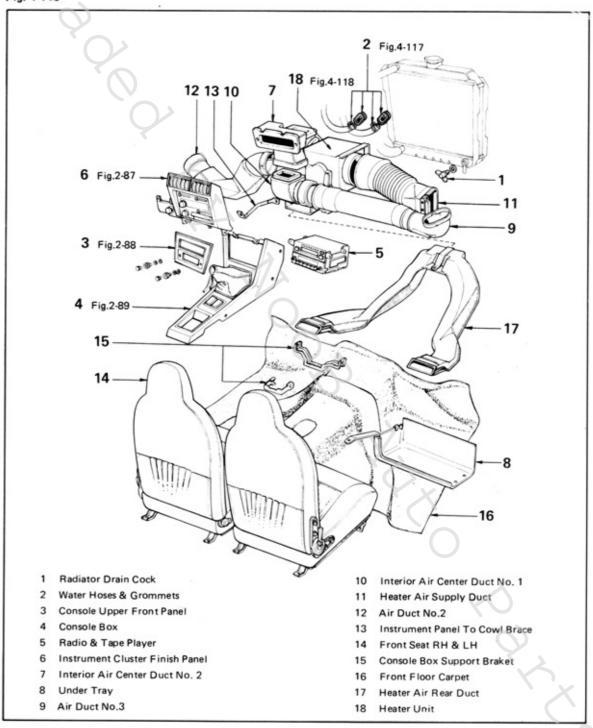
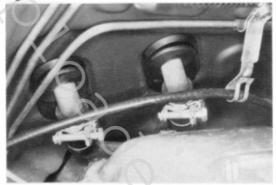


Fig. 4-117



HEATER UNIT REMOVAL

Disconnect water hose. (Item 2)

- Loosen the hose clamp and pull out the water hose from the hose union.
- Take off the grommet and plug the hose union.

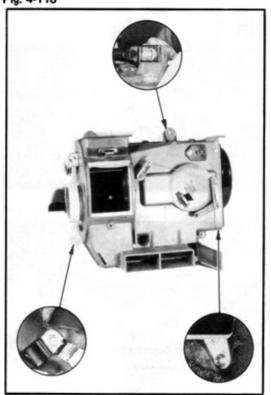
SEE SAFETY PAD REMOVAL PAGE 2-33



Instrument panel cluster finish center panel removal. (Item 6)

Perform the first 4 steps and the steps 8 through 13 in Safety Pad Removal Fig. 2-87.

Fig. 4-118





Heater unit assembly removal (Item 18)

- (1) Unplug register wiring connector.
- (2) Loosen the three heater unit mounting bolts, and take off the heater unit.

Heater Blower

REMOVAL

Remove the following parts in numerical order.

Fig. 4-119

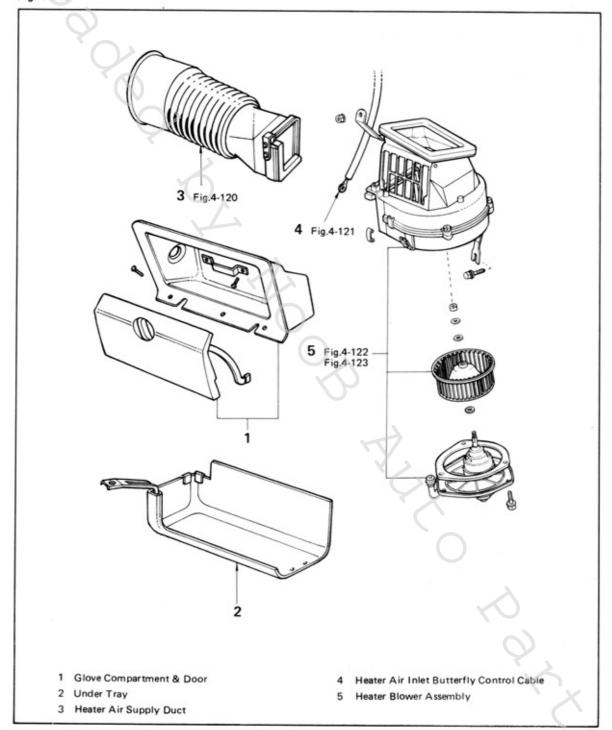
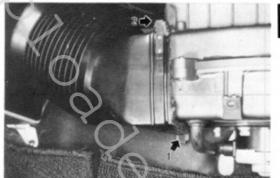


Fig. 4-120



HEATER BLOWER REMOVAL

- 1. Heater air supply duct removal (Item 3)
 - Remove the lower side clip (1) from the blower and peel off the heater air duct adhesive.
 - (2) After peeling off, remove the upper side clip (2) take off the heater air duct.

Fig. 4-121

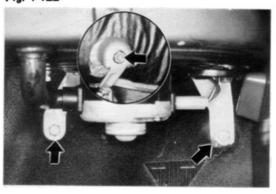




Heater air inlet butterfly cable removal (Item 4)

Press open the clip and disconnect the control cable.

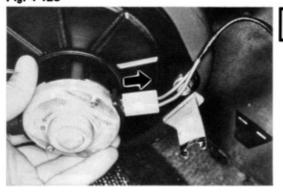
Fig. 4-122





- Blower assembly removal (Item 5)
 - Loosen the nut holding the upper side and the two bolts holding the lower side, and take off blower assembly.

Fig. 4-123





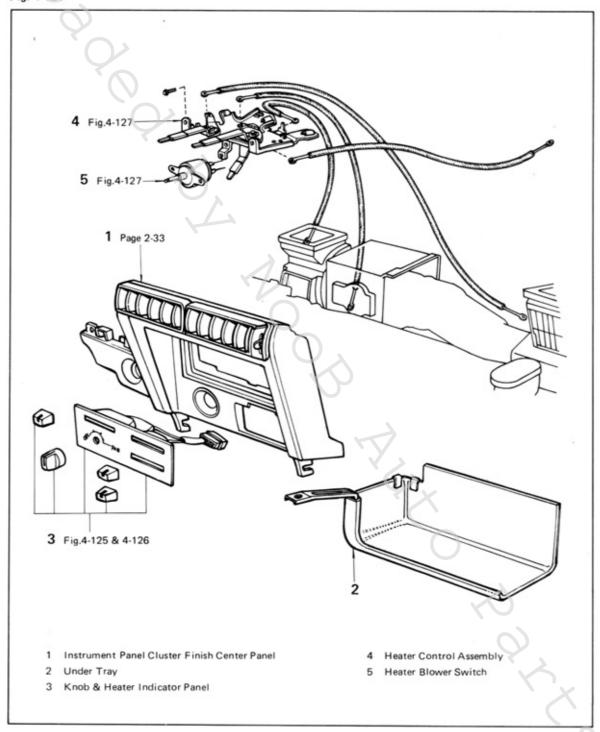
(2) While taking off the blower assembly, unplug the blower motor wire connector.

Heater Control & Switch

REMOVAL

Remove the following parts in numerical order.

Fig. 4-124

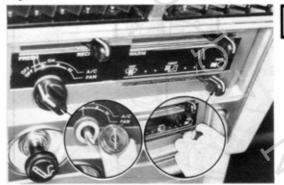


SEE SAFETY PAD REMOVAL PAGE 2-33



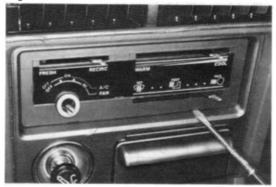
 Instrument panel cluster finish center panel removal. (Item 1)
 Perform the first 4 steps and the steps 8 through 13 in Safety Pad Removal Fig. 2-87.

Fig. 4-125



- 2. Heater indicator panel removal. (Item 3)
 - Pull out the heater control switch knob and heater control lever knob.

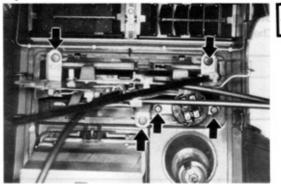
Fig. 4-126





(2) Remove the heater indicator panel by prying off with screwdriver.

Fig. 4-127





 Heater control assembly and heater blower switch removal. (Items 4 & 5)
 Remove by loosening the mounting screws from the back side of instrument panel cluster finish center panel.

INSPECTION

Fig. 4-128

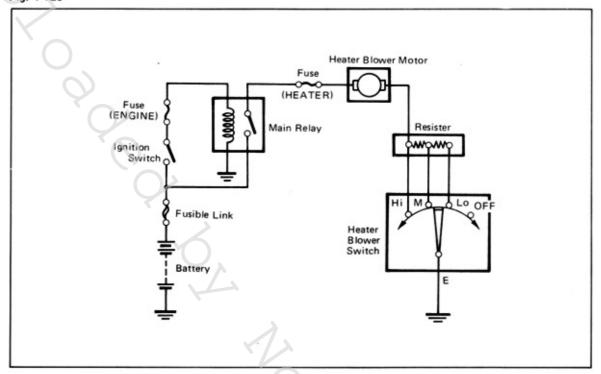
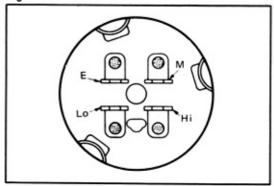


Fig. 4-129



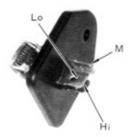


Heater Switch

Check continuity between the following terminals.

| TERMINAL SWITCH POSITION | E | Lo | м | Ηi |
|--------------------------------|------|----|---|----|
| OFF | | | | |
| 1ST STEP | 0- | - | | |
| 2ND STEP | · | | - | |
| 3RD STEP | · O- | | - | - |

Fig. 4-130





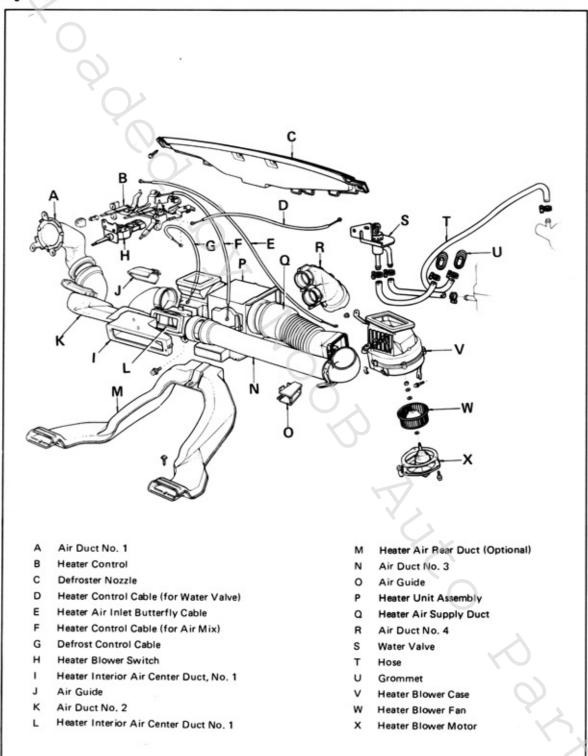
Blower Resistor

Check the resistances between terminals.

| Terminals | Resistance (Reference) | |
|-----------|------------------------|--|
| Hi to M | Ω 8.0 | |
| M to Lo | 1.0 Ω | |

HEATER(CELICA SERIES)

Fig. 4-131

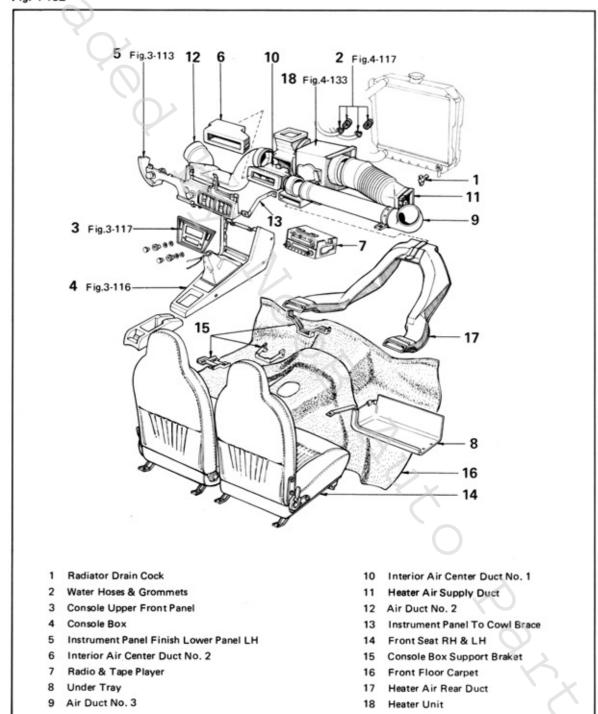


Heater Unit

REMOVAL

Remove the following parts in numerical order.

Fig. 4-132



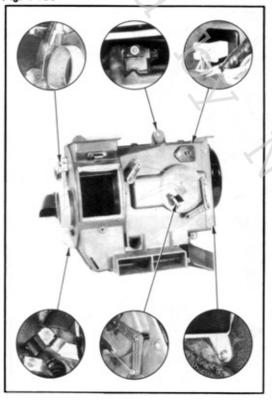
SEE SAFETY PAD REMOVAL PAGE 3-42

HEATER UNIT REMOVAL

Remove instrument panel finish lower panel LH. (Item 5)

Perform first 10 steps and steps 15 to 17 in Safety Pad Removal Fig. 3-113.







- 2. Heater unit assembly removal (Item 18)
 - Disconnect the two heater control cables.
 - (2) Disconnect register wiring connector.
 - (3) Remove the heater unit after loosening its three mounting bolts.

SEE CARINA SERIES HEATER BLOWER PAGE 4-49

Heater Blower

REMOVAL

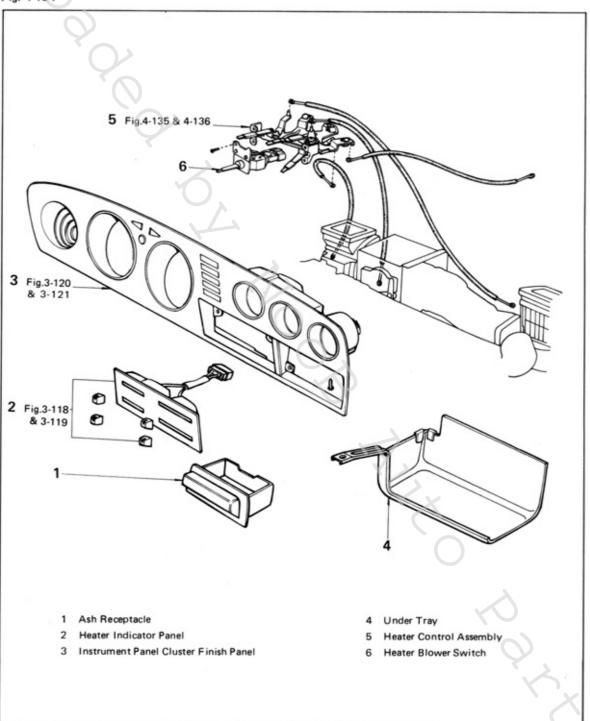
Remove by following the same procedures for Carina series heater blower (page 4-49).

Heater Control & Switch

REMOVAL

Remove the following parts in numerical order.

Fig. 4-134



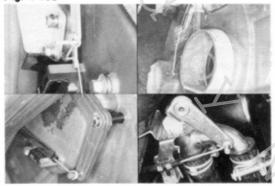
SEE SAFETY PAD REMOVAL PAGE 3-42



HEATER CONTROL & SWITCH REMOVAL

 Instrument panel cluster finish panel removal. (Item 3)
 Perform steps 5 and 6 in Safety Pad Removal page 3-44.

Fig. 4-135





- Heater control assembly removal. (Item 5)
 - Disconnect the heater control cables from the blower motor, heater unit, and water valve.

Fig. 4-136





(2) Loosen the heater control mounting screws, and take off the heater control assembly.

INSPECTION

Fig. 4-137

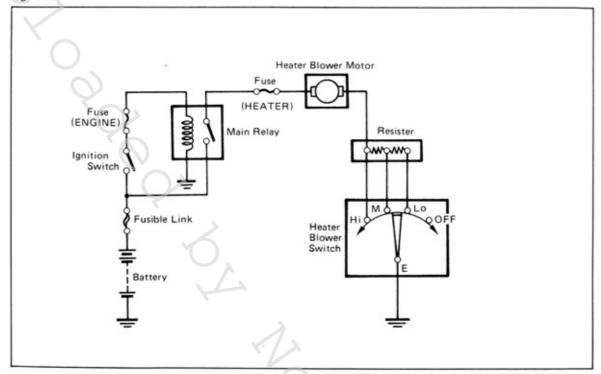
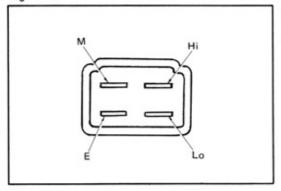


Fig. 4-138



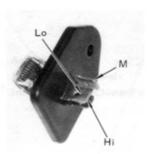


Heater Switch

Check continuity between the following terminals.

| TERMINAL SWITCH POSITION | E | Lo | м | Hi |
|--------------------------------|----|----|---|----|
| OFF | | | | |
| 1ST STEP | 0 | - | | |
| 2ND STEP | 0 | | - | |
| 3RD STEP | 0- | | | -0 |

Fig. 4-139





Blower Resistor

Check the resistances between terminals.

| Terminals | Resistance (Reference |
|-----------|-----------------------|
| Hi to M | 0.8 Ω |
| M to Lo | 1.0 Ω |

RADIO, TAPE PLAYER & SPEAKER

Fig. 4-140

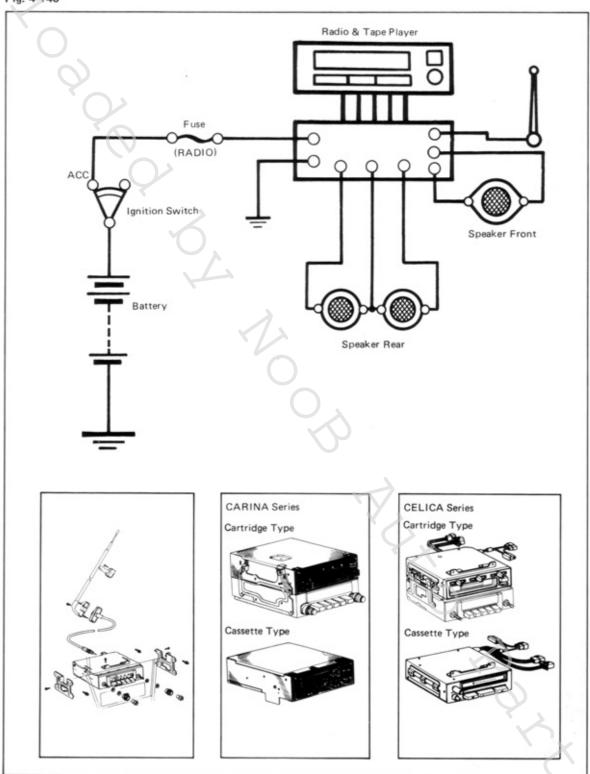


Fig. 4-141



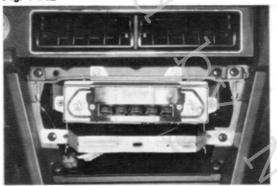
RADIO REMOVAL

←→

Carina Series

- . Remove the console upper front panel.
- Unplug the wiring connector at radio back side, and remove the radio.

Fig. 4-142





Celica Series

- 1. Remove the console upper front panel.
- Remove the console upper front retainer from the console box.
- Unplug the wiring connector at radio back side, and remove the radio.

Fig. 4-143





TAPE PLAYER REMOVAL

Remove the following parts:

- 1. Console upper front panel.
- 2. Console box
- 3. Radio & tape player

Fig. 4-144





SPEAKER REMOVAL

Carina Series

Remove the following parts:

- 1. Glove compartment & door.
- Speaker

Celica Series

Remove the following parts:

- 1. Instrument cluster finish panel.
- 2. Speaker.

CLOCK

Fig. 4-145

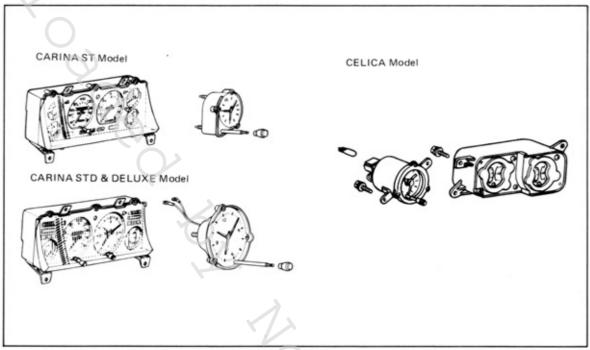
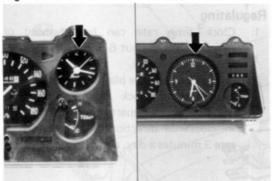


Fig. 4-146



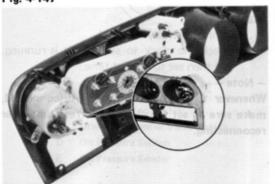
REMOVAL

Carina Series

Remove the following parts:

- 1. Instrument cluster finish panel.
- 2. Combination meter.
- Clock.

Fig. 4-147





Celica Series

Remove the following parts:

- 1. Instrument cluster finish panel.
- 2. Clock.



INSPECTION

Fig. 4-148

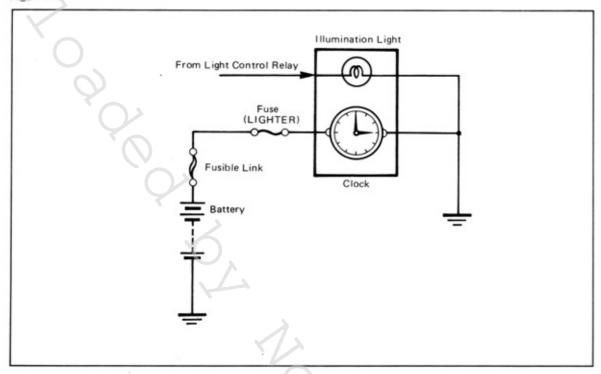
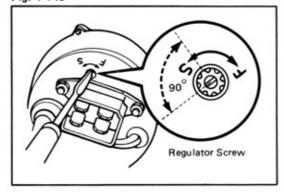


Fig. 4-149

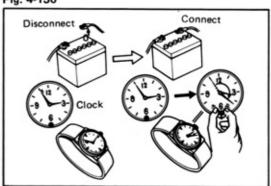




Regulating

- 1 Clock time rate can be advanced or retarded up to about 6 minutes a day with the regulator screw.
- To regulate, remove plastic dust cover from back side of clock case and turn the regulator screw. Quarter turn (90 degrees) in clockwise direction will advance time rate 3 minutes a day, and vice-versa.

Fig. 4-150





Starting

- Connect battery terminal.
- Check the clock to see that it is running, and then set to correct time.

- Note -

Whenever the battery terminal is disconnected, make sure to set the clock to correct time after reconnecting.

SWITCHES & RELAYS LOCATION (CARINA SERIES)

Fig. 4-151

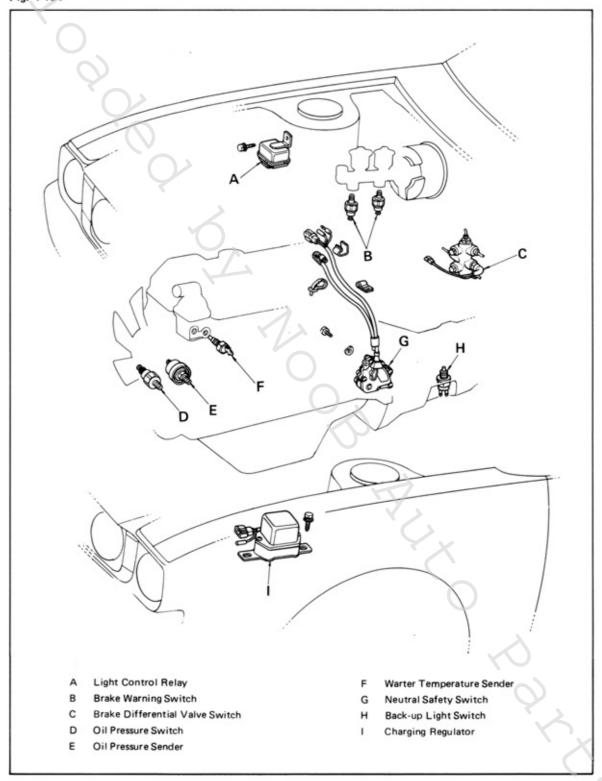
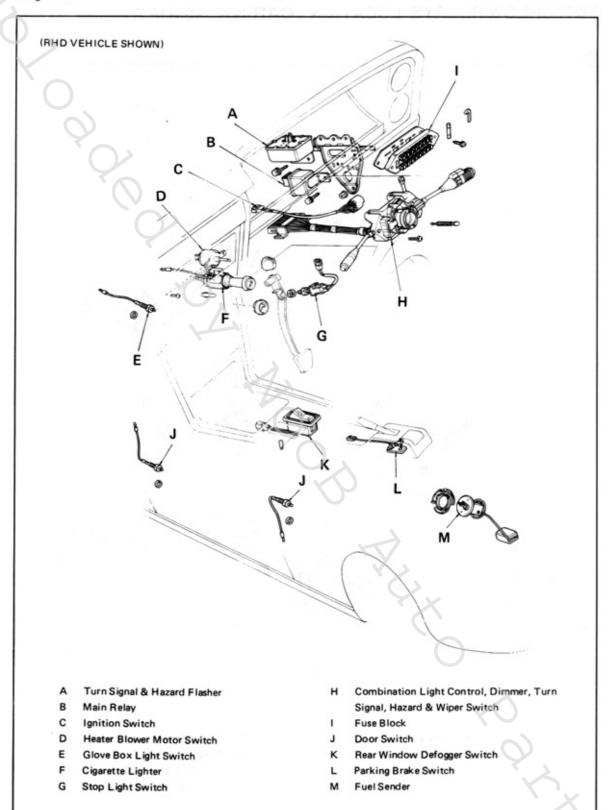


Fig. 4-152



SWITCHES & RELAYS LOCATION (CELICA SERIES)

EXCEPT USA & CANADA

Fig. 4-153

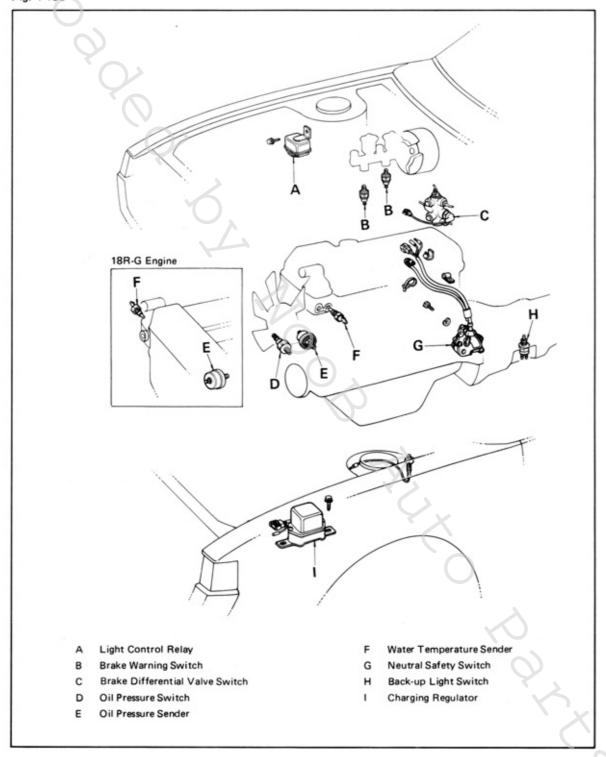
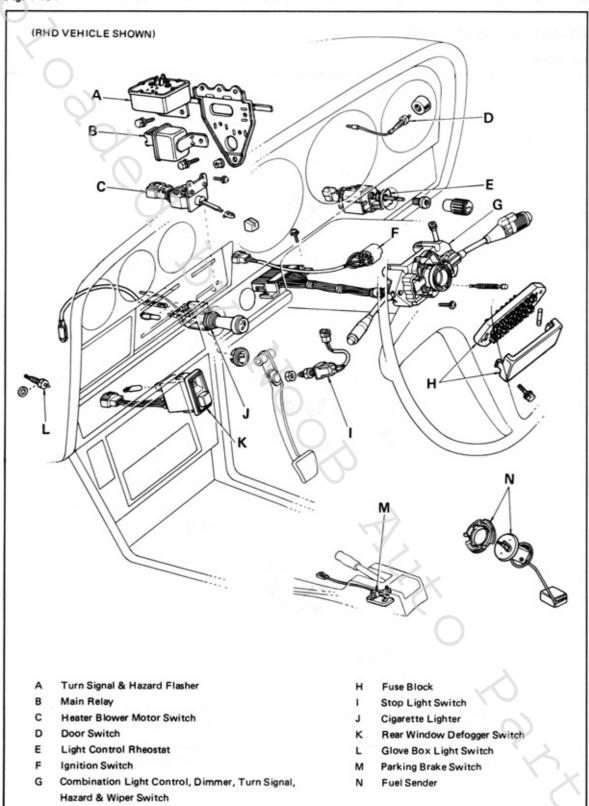
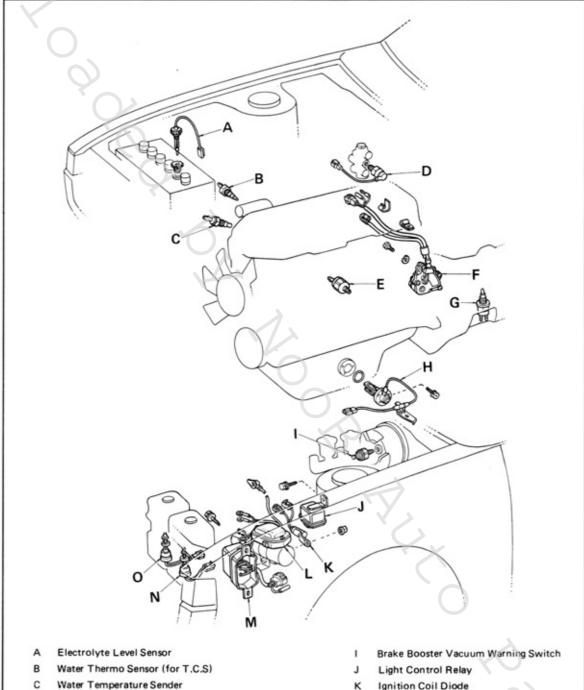


Fig. 4-154



FOR USA & CANADA

Fig. 4-155



- Water Temperature Sender
- D Brake Differential Valve Switch
- Е Oil Pressure Switch (for Engine)
- F Neutral Safety & Reverse Switch
- Back-up Light Switch G
- н Engine Oil Level Sensor

- Ignition Coil Diode
- Igniter
- Charging Regulator
- Windshield Washer Level Warning Switch
- Coolant Reserve Tank Level Warning Switch

Fig. 4-156

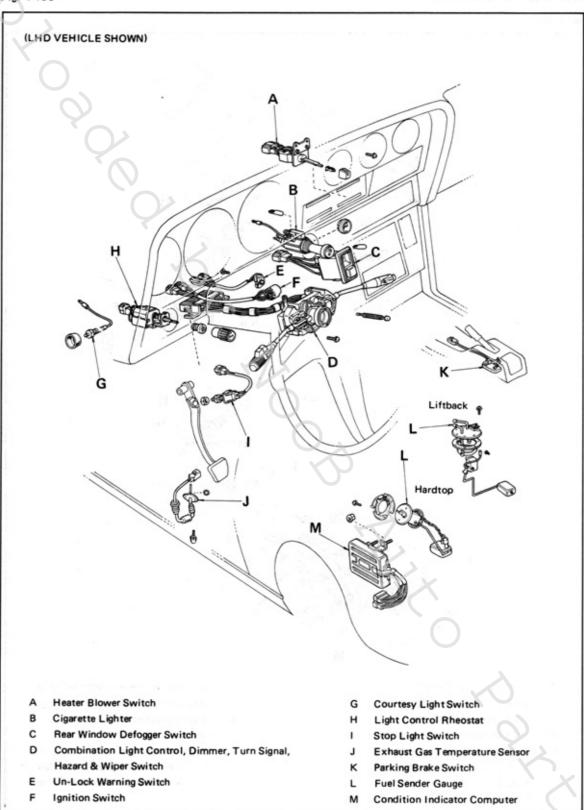
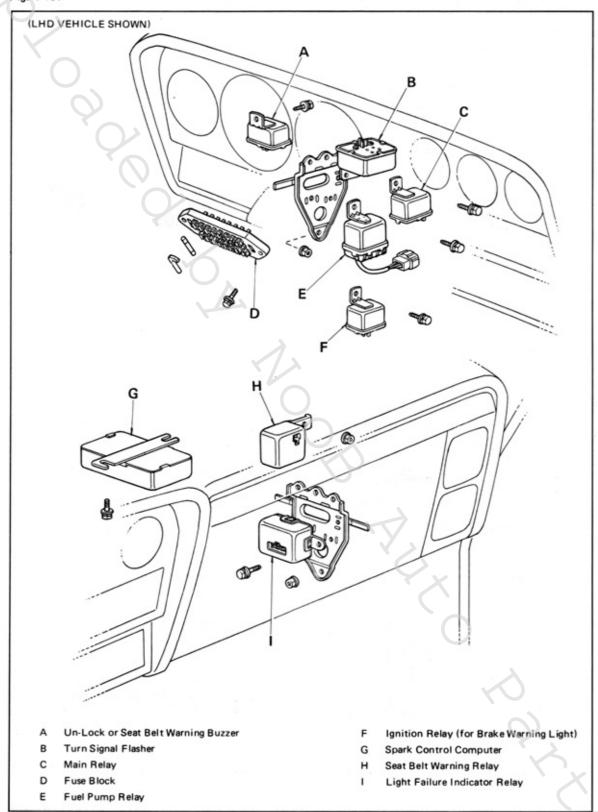


Fig. 4-157



LIGHT COMPONENTS(CARINA SERIES)

Fig. 4-158

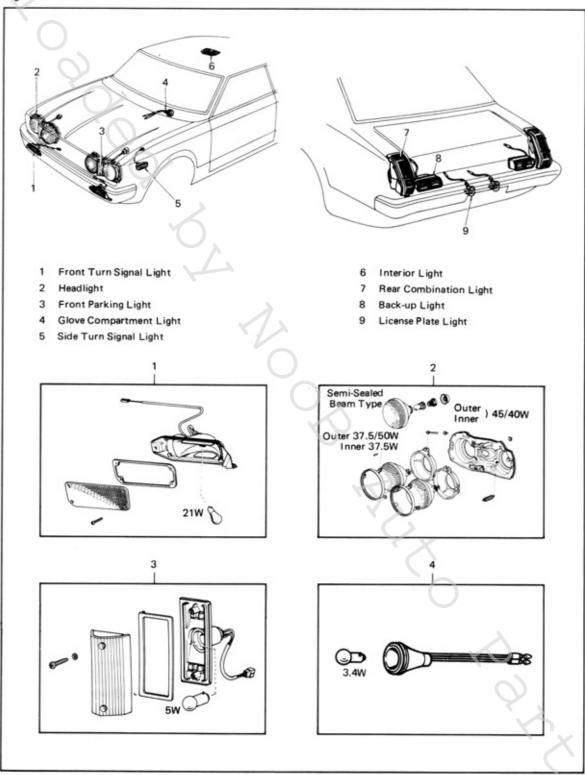
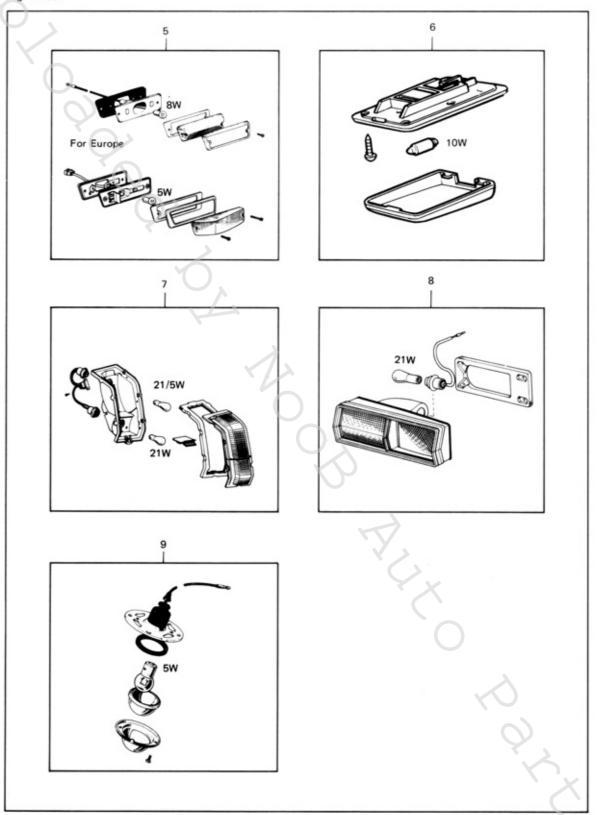


Fig. 4-159



LIGHT COMPONENTS (CELICA SERIES)

Fig. 4-160

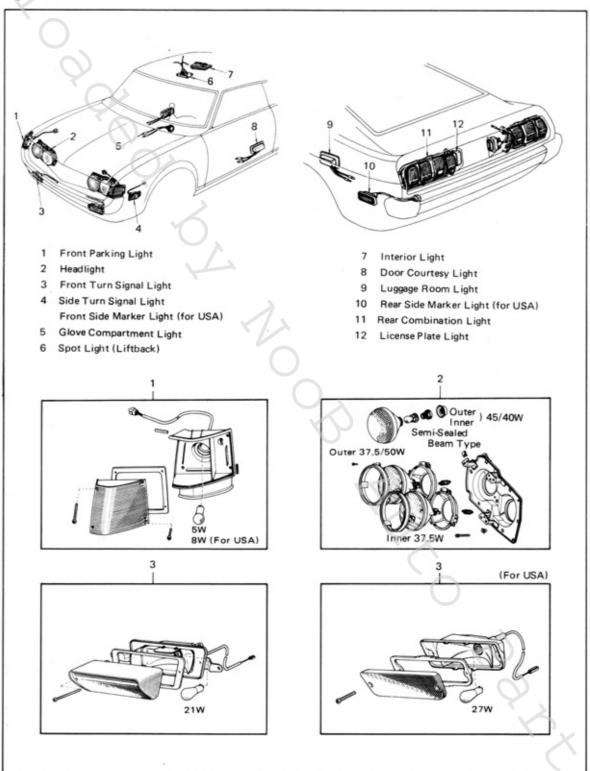
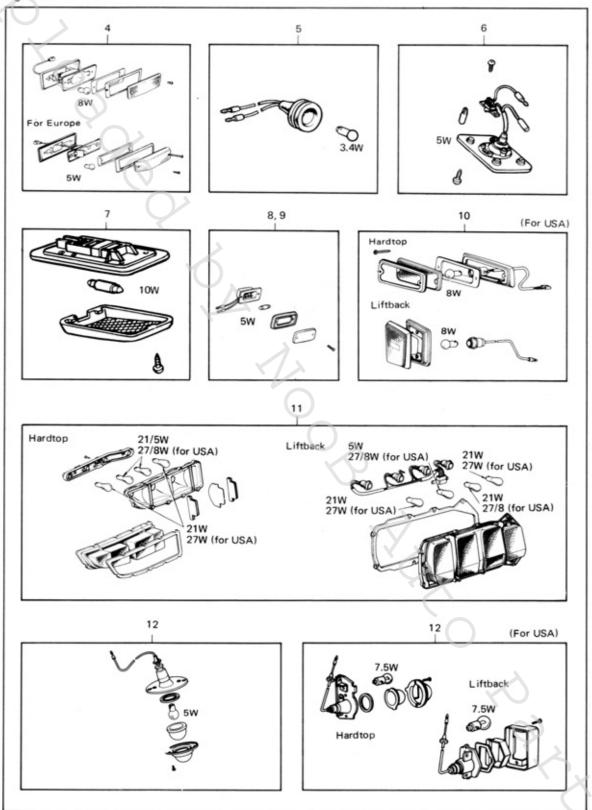


Fig. 4-161



WIRING HARNESS ROUTING (CARINA SERIES)

Fig. 4-162

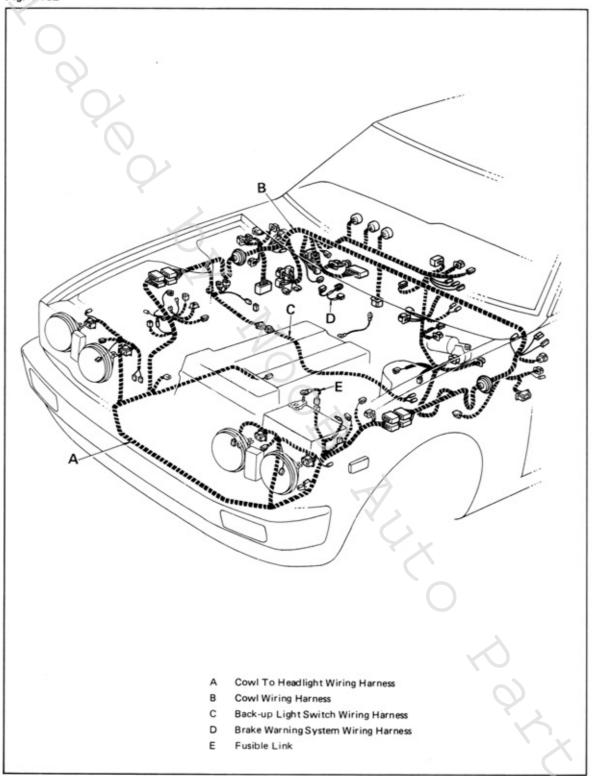
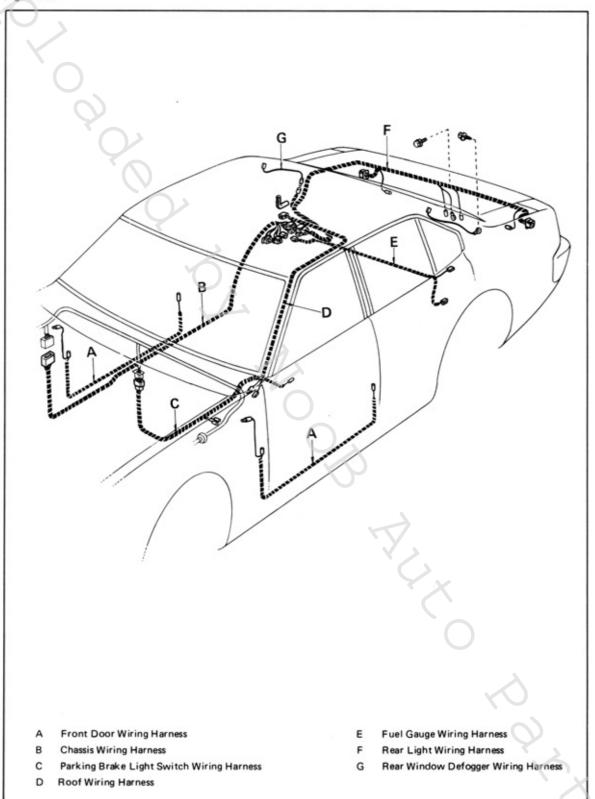


Fig. 4-163



WIRING HARNESS ROUTING (CELICA SERIES)

EXCEPT USA & CANADA

Fig. 4-164

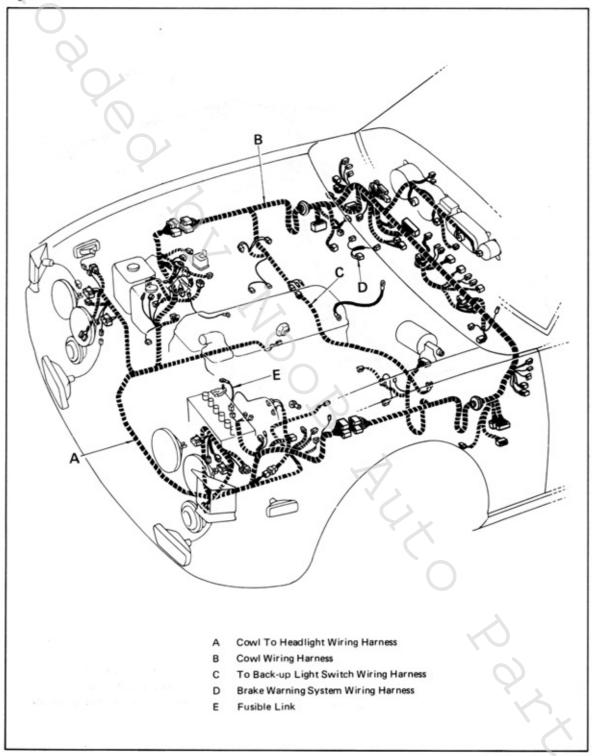
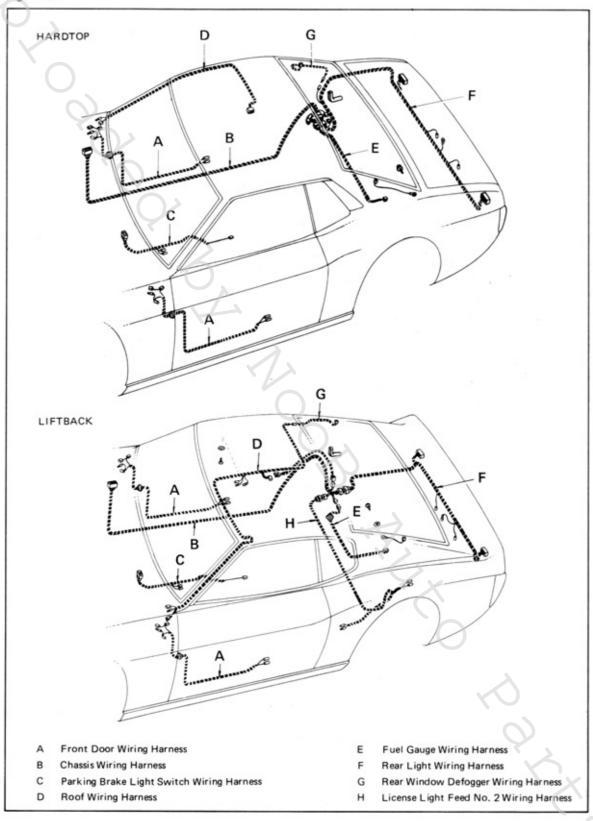


Fig. 4-165



FOR USA & CANADA

Fig. 4-166

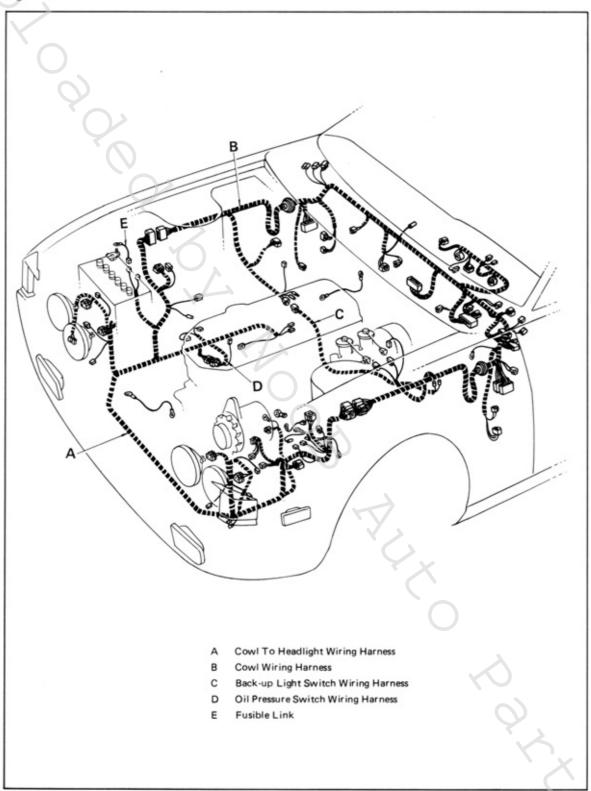
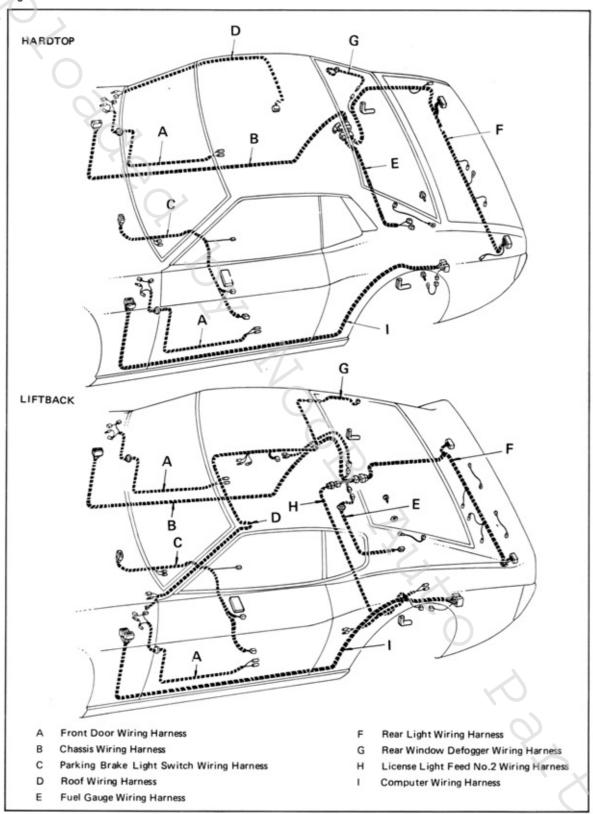


Fig. 4-167



MEMO